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THE LANDS

52-102

OF THE

Southern Pacific Railroad Company

OF CALIFORNIA:

WITH

GENERAL INFORMATION

ON THE

RESOURCES OF SOUTHERN CALIFORNIA.

JEROME MADDEN,

LAND AGENT OF THE S. P. R. R. COMPANY,

CORNER OF FOURTH AND TOWNSEND STREETS,

SAN FRANCISCO, CAL.

APRIL 1ST, 1880.

THE LANDS

OF THE

Southern Pacific Railroad Company.

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THE LANDS

OF THE

Southern Pacific Railroad Company

OF CALIFORNIA.

SECTION 1. *Purpose of Pamphlet.*—The purpose of this pamphlet is to give information about the lands offered for sale by the Southern Pacific Railroad Company of California, their situation, topography, soil, climate, vegetation, value and price, the terms upon which they can be obtained, and the general policy of the Company in their sale.

It is impossible, in such a pamphlet, to describe or even to mention each section, for there are about 20,000 of them, each a mile square; but it is the intention to answer here all the main questions of a general character which the person desirous of purchasing needs to ask, leaving the details about any special tract to be learned by inquiring at the office.

SEC. 2. *No Sale Before Patent.*—The general rule of the Company is to sell no land before a patent has been issued to it. This protects the purchaser against the danger of getting a bad title, and the Company against the suspicion of taking advantage of the ignorant.

SEC. 3. *Railroad Title.*—The Company holds under a patent direct from the Federal Government, and its title is thus free from the dangers that beset all titles that have passed through a number of individuals. No suit will be instituted against the railroad title on account of minor heirs, undivided interests, defective acknowledgments, or those common flaws to be found in a long succession of conveyances.

SEC. 4. *Settlement Before Patent.*—The Company invites

settlers to go on the lands before patents are issued; and intends, in such cases, to sell to them in preference to any other applicants, and at prices based upon the value of the land without the improvements put upon it by the settlers. It makes no definite contract with any individual upon this basis, but it treats all fairly. It will not sell to somebody else, merely because the latter offers a higher price. It will not sell to any one land that may be required by it for railroad purposes, such as places for depots, stations, etc., or for town sites. Any person desiring to settle upon vacant railroad land before it is patented, should address a letter to the Land Agent of the Company, requesting a copy of a blank application for the purchase of land. The following is a copy of one of these applications as filled in, the words and figures here enclosed in brackets occupying spaces which are blank in the printed form, and which the applicant should fill in to suit his own case:

APPLICATION. -SOUTHERN PACIFIC RAILROAD COMPANY. LAND
DEPARTMENT.

[BAKERSFIELD, Nov. 1st, 1876.]

The undersigned hereby applies to purchase the [north-west quarter] of section [6] of township [30 south] range [25 east] [Mount Diablo] base and meridian, in [Kern] County, California, containing [160] acres.

Residence, [2 miles south of Bakersfield].

Post-office address, [Bakersfield, Kern County, California].

JOHN SMITH.

The value of the application depends entirely upon the care and correctness with which the blanks are filled in. If the numbers are wrong, or if the signature can not be read, or if the post-office address is not given with entire clearness, the applicant must not blame anybody but himself if the application does not benefit him. Every letter in the signature should be so plain that there can be no mistake about it. A scratch that may be intelligible to a personal friend, who, knowing from whom to expect a letter, and what to expect in it, may understand that which would be illegible to others. Five

minutes of extra time is all that is necessary for getting the application right. The address given should be the permanent address, where the applicant can be reached at any time; and if, after giving it, he should move, he should then send his new address, mentioning in his letter the township and range of the land for which he has applied, so that the new address can be put with the application, which is filed according to the township and range in which it is situated. If he wants several pieces of land in the same township, he should include all in one application; if he wants land in different townships, then there should be a different application for each township.

The Land Agent will send a receipt for the application, and if then the applicant will, without unreasonable delay, permanently occupy and cultivate the land, he can expect to have preference of purchase at the fixed price over all other applicants; but his claim will not be entitled to any consideration if he does not show his good faith by occupation and cultivation, or improvement. The Company will give a preference to settlers over speculators.

If the settler goes upon the land before survey, he should describe it as nearly as possible, and as soon as the survey is made, send the description to the Land Agent.

An application for land confers no vested right or privilege on the applicant. It is merely a notice that he wishes to buy.

The filing of an application does not carry with it the right or permission to cut wood or timber from the lands of the Company, except for firewood for the domestic uses of the actual occupants of the tract applied for, or for fencing and improving it.

Applicants, or other persons, who shall be detected in cutting wood or timber on railroad lands, except for the purposes above specified, or in selling or carrying it away, will be prosecuted with the utmost severity of the law.

SEC. 5. *Land Policy of Company.*—The policy of the Company has always been, and is now, to encourage the settlement of its lands in small tracts, by persons who will live on and cultivate them. To this end settlers are invited to make ap-

plications to buy and to occupy and put to use the vacant lands until such time as they shall be ready for sale. If the settler desires to buy, the Company gives him the first privilege of purchase at the fixed price, which, in every case, shall only be the value of the land, without regard to the improvements. It must be understood that the application of a speculator, or of a person who does not improve or occupy the land, will not, although received first, take precedence or priority of that of the settler whose application may, perhaps, be filed last of all. The actual settler, in good faith, will be preferred always, and the land will be sold to him as against every other applicant. The Company also wishes it to be known that a mere application to buy land, unaccompanied by actual improvement or settlement, confers no right or privilege which should prevent an actual settler from taking it, if vacant, into possession, and cultivating and improving it.

When there are two or more applicants for the same tract of land, an adjudication of their respective claims will be made by the Land Agent, upon due notice (thirty days) given to the parties, and the right to buy, at the appraised valuation will be awarded to the applicant who shall be deemed to have the most equitable claim. Should the applicants, or either of them, pay no attention to the notice, or fail to be present in person, or by representative, at the time and place mentioned in it, they shall be considered to have abandoned their applications, and all right or claim to purchase; and the land will then, at the option of the Railroad Company, be open for purchase by any person to whom the Company may choose to sell.

Careful regard is paid to the requirements of the law in every particular so as to protect the officers of the Company against complaints for the past and distrust for the future. The cultivation of confidence is necessary for the Company.

SEC. 6. *Payment in Coin.*—All sales are made for gold coin, which may be paid in person or sent by express or by a banker's check on a bank in San Francisco. The Company does not deal in exchange or take any risk of loss in trans-

mission. The collection of orders upon business men in San Francisco, or of checks upon city banks drawn by farmers or country merchants is often attended with much delay and vexation, and therefore such orders or checks will not be received; but a check drawn by any solvent country bank upon a San Francisco bank, with which it has funds, is good. No paper is made out until after payment. No contract is made to accept work of any kind as payment. If the purchaser is in the employment of the Company, he should get his money and come with it to the Land Office. It is useless for him to bother with offers to grade, cut wood or do something in compensation for land. The departments have separate accounts.

The Company does not give free transportation to persons who have bought land. Nor after purchase does it carry their building material, furniture or cattle, free. In this, as in other respects, the land and transportation departments of the Company manage their business on the cash basis and on separate accounts.

SEC. 7. *Prices.*—The lands are not uniform in price, but are offered at various figures from \$2.50 upwards per acre. Most is for sale at from \$2.50 to \$20. It is impossible to give the prices by sections or minor subdivisions in this pamphlet. Special inquiry must be made as to each piece. The purchaser must pay for the acknowledgment of the three signatures to the deed—the law now allows one dollar for each signature—and he must pay for recording, usually about \$2.50 for each deed.

SEC. 8. *Appraising Lands.*—When lands are ready to be sold, the Company sends a man well acquainted with the quality of soil and skilled in determining the kind of agricultural product to which it is best adapted, as also in determining its true market value, to look at the various sections and tracts. After personal examination, he rates the land as being first, second or third quality of farming, vineyard, timber, or grazing land, and reports the value of each piece. His report is examined, and if found correct, a price is established. The price is generally that of unimproved land of the same qual-

ity in the immediate vicinity at the time of appraising. In ascertaining the value, any improvements that a settler or other person may have on the land will not be taken into consideration, neither will the price of the land be increased in consequence of them. Further, there is but one price—that fixed by the Company—and land will be sold at that rate to those who in equity have the best right to buy, even if others should offer more per acre than the amount asked. Settlers are thus assured that, in addition to being accorded the first privilege of purchase at the rated price, they will also be protected in their improvements.

SEC. 9. *When time Allowed.*—Land is sold on contract allowing time for payment of a part of the purchase money—if the tract be 80 acres or more and it have no timber. If it be less than 80 acres, or if it be covered with timber, no sale will be made except upon full payment of cash before the execution of any paper. The rule of the Company is to make no contracts for sale of land before the patent for it has been received.

SEC. 10. *Terms of Sales.*—Lands can be bought as follows:

1. Payment in full at time of purchase, with \$3.00 notary's fee for acknowledgment of signatures to deed. (See Example 1, page 10.)

2. Payment of twenty per cent. of total amount, and first year's interest on remainder at time of purchase,—interest annually on said remainder *in advance*; the remainder payable at expiration of five years. Should purchaser desire to make full payment before expiration of five years, he may do so. (See Example 2, page 10.)

3. In five annual payments. Twenty per cent. of total amount and first year's interest on remainder at time of purchase; the remainder payable in four equal annual payments at the commencement of each year from date of contract, with interest yearly *in advance*. If preferred, payment in full can be made at any time. (See Example 3, page 11.)

4. In nine payments. Twenty per cent. of total amount and first year's interest on remainder at time of purchase; the remainder payable in eight equal semi-annual payments, the

first of these payments one year after date of contract, and the others every six months thereafter, with interest on the remainder semi-annually *in advance*. If preferred, payment in full can be made at any time. (See Example 4, page 12.)

The rate of interest in all cases will be seven per cent. per annum.

Persons must, at time of purchase, choose definitely on which of the foregoing plans they prefer to buy; for after papers shall have been made out, in order to avoid confusion in keeping accounts, no change will be made from one plan of sale to another.

Part payments of purchase money or of interest, except as above stated, will not be received.

No longer credit than five years is allowed in any case.

In many instances in which purchases have been made on credit, the buyers have realized enough from the crops of a single year to pay for the land.

On land sold under contract the purchaser must cut no wood save for domestic purposes of the actual occupants, or for fencing the tract bought, until he has made his last payment.

All contracts may be assigned by the purchaser. Forms for that purpose, to be signed by assignor and assignee, are printed on the back of each contract. The assignment must be acknowledged before a Notary Public, or a Clerk of a Court of Record.

When a contract is made, the purchaser must, from that date, see that the land is assessed to him, and must pay all the taxes and assessments of every kind levied on the land for public purposes.

EXEMPLIFICATION OF FOREGOING PLANS, AND MANNER OF
COMPUTING PAYMENTS.

Example 1.

160 acres say at \$5.00 per acre.....	\$800.00	
Notary's fee for acknowledgments to deed..	3.00	
Payment in full.....		\$803.00

Example 2.

Purchase January 1, 1881, 160 acres, say at \$5.00 per acre, \$800.00.

Jan. 1, 1881—20 per cent. of \$800.00.....	\$160.00	
First year's interest on remainder, \$640.00.....	44.80	
First payment.....		\$204.80
Jan. 1, 1882—Second year's interest on remainder, \$640.00.....		44.80
Jan. 1, 1883—Third year's interest on remainder, \$640.00.....		44.80
Jan. 1, 1884—Fourth year's interest on remainder, \$640.00.....		44.80
Jan. 1, 1885—Fifth year's interest on remainder, \$640.00.....		44.80
Jan. 1, 1886—Remainder of purchase money	\$640.00	
Notary's fee for deed.....	3.00	
		\$643.00

Example 3.

Purchase January 1, 1881, 160 acres, say at \$5.00 per acre,
\$800.00.

Jan. 1, 1881—20 per cent. of \$800.00.....	\$160.00	
First year's interest on remain- der, \$640.00.....	44.80	
First payment.....		\$204.80
Jan. 1, 1882—20 per cent. of \$800.00.....	\$160.00	
Second year's interest on re- mainder, \$480.00.....	33.60	
Second payment.....		\$193.60
Jan. 1, 1883—20 per cent. of \$800.00.....	\$160.00	
Third year's interest on re- mainder, \$320.00.....	22.40	
Third payment.....		\$182.40
Jan. 1, 1884—20 per cent. of \$800.00.....	\$160.00	
Fourth year's interest on re- mainder, \$160.00.....	11.20	
Fourth payment.....		\$171.20
Jan. 1, 1885—20 per cent. of \$800.00 being re- mainder of purchase money.	\$160.00	
Notary's fee for deed.....	3.00	
Fifth payment.....		\$163.00

Example 4.

Purchase January 1, 1881, 160 acres, say at \$5.00 per acre,
\$800.00.

1881	Jan. 1—20 per cent. of \$800.00	\$160.00	
	First year's interest on remainder, \$640.00	<u>44.80</u>	
	First payment.....		\$204.80
1882	Jan. 1—10 per cent. of \$800.00.....	\$80.00	
	First six-month's interest on remainder, \$560.00.....	<u>19.60</u>	
	Second payment.....		\$99.60
	July 1—10 per cent. of \$800.00.....	\$80.00	
	Second six-month's interest on remainder, \$480.00....	<u>16.80</u>	
	Third payment.....		\$96.80
1883	Jan. 1—10 per cent. of \$800.00.....	\$80.00	
	First six-month's interest on remainder, \$400.00.....	<u>14.00</u>	
	Fourth payment.....		\$94.00
	July 1—10 per cent. of \$800.00.....	\$80.00	
	Second six-month's interest on remainder, \$320.00....	<u>11.20</u>	
	Fifth payment.....		\$91.20
1884	Jan. 1—10 per cent. of \$800.00.....	\$80.00	
	First six-month's interest on remainder, \$240.00.....	<u>8.40</u>	
	Sixth payment.....		\$88.40
	July 1—10 per cent. of \$800.00.....	\$80.00	
	Second six-month's interest on remainder, \$160.00....	<u>5.60</u>	
	Seventh payment....		\$85.60
1885	Jan. 1—10 per cent. of \$800.00.....	\$80.00	
	First six-month's interest on remainder, \$80.00.....	<u>2.80</u>	
	Eighth payment.....		\$82.80
	July 1—10 per cent. of \$800.00, being remainder of purchase money	\$80.00	
	Notary's fee for deed.....	<u>3.00</u>	
	Ninth payment.....		\$83.00

LAND-SEEKER'S TICKET.—Emigrant tickets are on sale at all the principal Eastern ports to San Francisco, which are good for continuous passage to that city, Sacramento, San Jose, Lathrop, or intermediate points. The fare from New York to San Francisco (3,350 miles) for some years past has been \$65 ; and from Chicago, St. Louis, and interior points, proportionately less.

At San Francisco, Sacramento, San Jose, Lathrop and Los Angeles, the intending purchaser can buy a "Land-Seeker's Ticket" to points along the line of the Southern Pacific Railroad. In connection with this, there will be a non-transferable voucher, stating the amount paid. The person named therein can turn in this voucher as cash in his first payment for land. *Free transportation is thus virtually furnished to the settler from the overland line to the vicinity of his land.*

SEC. 11. *Deed.*—The Company gives what is known as a bargain and sale deed, the form customary in California. It warrants to the purchaser that he gets the entire title acquired by the Company from the Federal Government and is signed by President and Secretary of the Company and two Trustees.

No deed will be made until the entire price shall have been paid.

SEC. 12. *Select for Yourself.*—No officer of the railroad selects land for another person, nor could such selection be made without exposing the Company to vexatious complaints.

Everybody who intends to buy should, if possible, visit and examine the land, for nobody knows so well what he wants, or at least no one can safely assume the responsibility of deciding for him.

SEC. 13. *Rent*.—The Company will lease its vacant grazing or agricultural lands by the year, or for a term of years, but reserves the right of selling its grazing lands so leased at any time, or its agricultural lands at the end of any crop year, repaying to the lessee of grazing land a share of the rent-money proportioned exactly to the area sold, the time of the sale and the duration of the lease. The lessee must not cut any timber except for firewood for domestic purposes of the actual occupants of the tract.

SEC. 14. *Railroad Lands*.—Lands granted by Mexico, lands sold by the United States, or taken by pre-emption or homestead, in accordance with law, before the railroad title attached, and lands which have been reserved as mineral, are not "vacant Federal lands" as that term is used here, and do not pass to the Company.

The lands given to the Southern Pacific Railroad Company by Congress, extend from San José, by way of Gilroy, Hollister, San Benito Pass, Huron, Goshen, Tehachapi Pass, Los Angeles and San Gorgonio Pass, to Fort Yuma, and also from Tehachapi Pass, eastward to the Needles, on the Colorado River.

The San Francisco and San José Railroad has been incorporated with the Southern Pacific Railroad, having been constructed on part of the route before the bill granting the franchise and land to the latter road was passed.

The land grant from San José to Fort Yuma is 680 miles long, and covers all the unreserved odd sections within thirty miles of the road on each side. It would not take more than twenty miles from the road if all had been unreserved; but portions of Santa Clara, Santa Cruz, Monterey, San Benito, Ventura Los Angeles and San Bernardino and other counties were held under Mexican grant or were otherwise reserved from

the Company, which will not get the full 12,800 acres for each mile, even by going to the full distance of thirty miles from the road.

The railroad grant on the section between San José and Tres Pinos, fifty-one miles long, covers nearly all of Santa Clara and Santa Cruz counties, parts of Merced, Fresno and Monterey and Stanislaus. Most of these lands, however were previously covered with Mexican grants, or were otherwise legally occupied, and the Company has little land for sale in those counties, and most of that little is in the mountains, and at present difficult of access.

SEC. 15. *San Joaquin Valley*.—The San Joaquin Valley, nearly all of which, south of latitude 37° North is within the railroad limits, and which contains the largest body of fertile land belonging to the Company, is forty-five miles wide, one-third lying west of the river or main drain of the basin, and two-thirds to the eastward of it.

The attention of settlers is specially invited to Fresno, Tulare and Kern counties, which have the largest body of level, fertile, unoccupied land, accessible by railroad, in the State. It is destined to be filled, at no distant time, with an intelligent and industrious people, and to be the centre of great wealth. The vast supplies of water and magnificent timber in the adjacent Sierra, and the facilities for bringing them to the plain, will be of great value. Since the construction of the railroad was commenced in this part of the San Joaquin Valley, a steady stream of immigrants has been pouring in to make homes there.

SEC. 16. *Coast Mountains*.—The main ridge of the Coast Mountains averages 3,000 feet in height, and its summit is twelve miles, in a direct line, from the base of the foothills. The creeks running down this mountain-side dry up or disappear in the summer before reaching the river or medial drain, but some of them carry considerable quantities of water in the rainy season, and will be valuable for irrigation purposes.

SEC. 17. *Mojave Plains*.—The road in its southward course, at Tehachapi Pass, enters the Mojave Plains, part of the en-

closed American basin which sends no water to the sea. The land here is sandy, but rich enough to produce good crops if it were irrigated from artesian wells or some other source. In many places the water is only six feet from the surface, and can be pumped up by windmills, which here, can be run at all seasons.

SEC. 18. *Southern Coast*.—From San Fernando to San Geronio, a distance of 120 miles, the road runs through a fertile country on the western slope of the Coast Mountains. This is one of the most productive and beautiful regions in the sub-tropical climes of the globe. The leading towns are built in places where there is water for irrigation, and, as seen from a distance, are almost hidden by the trees, which are comparatively rare elsewhere in that part of the State. In the Summer and Autumn, when the grass is dry and the plains generally bare and brown, the towns appear to the traveler like oases in a desert, their beauty made more enchanting by the surrounding desolation, the impression of which is irresistible, even when it is known that wild pasture is abundant in the early spring, and that the fertile soil needs nothing but moisture to make it an ever-blooming garden.

Most of this valley land is bare of trees, and after midsummer, dry, but may be irrigated; and, with a good supply of water would be very productive, even where the soil is sandy. The farmer accustomed to the fat soils in the bottoms of the Mississippi basin may suppose that a thin sandy soil will produce nothing, or will soon be exhausted; but it is not so. In 1857 the site of Anaheim was a sand plain, with little vegetation save cactus and desert shrubs, and now the town is embowered in its luxuriant vegetation. The original character of the soil still remains. If a current of water be run through a furrow for two days, and then stopped, nothing but pure white sand is seen in the furrow so far as it was filled with water, all the other material of the soil having been dissolved or carried off. Magnificent gardens at Los Angeles, San Fernando, and many other towns, thrive upon similar places, and some of them have grown so for nearly a hundred years, with no sign of exhaustion of the soil. It is probable that even pure sand would be productive, with abundant irrigation.

SEC. 19. *Colorado Desert*.—That part of the Valley of the Colorado, near and south of the Southern Pacific Railroad, between Seven Palms and Fort Yuma, is called the Colorado Desert. The river at Fort Yuma, in summer, is 110 feet above the ocean level, and its water can be led into the desert, which with a good supply of irrigation, could be converted into a garden.

SEC. 20. *Soil*.—The underlying rock of some of the railroad land near Panoche, Tehachapi, and San Geronio passes is granite, and elsewhere a sandstone, which, by their decomposition, have furnished materials for the soil. The sandstone is not uniform in character. In the coast range it makes a strong clay; south of Tehachapi there is a large proportion of sand; in the foot-hills of the Sierra Nevada, there is much gravel mixed with clay: in the region between Tehachapi and Soledad Pass, and east from San Geronio, we find gravel mixed with sand. Most of the soil in the San Joaquin Valley is a sandy loam; but there are districts of deep black loam, almost free from sand, and of an earth that, when dry, looks like fine ashes, works well under the plough, and is very fertile where supplied with moisture.

SEC. 21. *Vegetation*.—A large part of Santa Cruz county, within the railroad limits, is covered with magnificent redwood forests, but little of it belongs to the Southern Pacific Company. In San Benito and Monterey there is much oak in the valleys and lower hills of the coast range, and some pine and fir in the higher mountains; but there, as in Santa Cruz, the Southern Pacific owns little timber. There are no trees along the western side of the San Joaquin Valley, and few near its middle, but in the foot-hills, along its eastern side, oak is abundant; and above the level of the oak there are extensive forests of the Big Tree, or *Sierra Sequoia*, Sugar Pine, Fir, and other trees of magnificent size and valuable wood. The lumber of these forests is carried down to the valley in flumes, at little expense, by water.

Forests of pine are found in the mountains in Ventura county, and also in the higher parts of the coast range, between Soledad and San Geronio Passes.

In the Mojave Plains the most common, if not the only tree, is the Yucca, a tree resembling a palm, which is worth little save to be converted into pulp for paper.

The land which has a soil suitable for tillage is usually bare, so that it can be ploughed up without expense or labor for clearing. There are, however, some districts, especially in the southern part of the State, where the dry soil is covered with low bushes and cactus, that look to the stranger as if he were in an irreclaimable desert; yet experience has proved that such tracts, when irrigated and cultivated, even without manure, can be converted into gardens which, for luxuriance and beauty, have no equals in the Atlantic States or central Europe. The towns of Los Angeles, Anaheim, and San Fernando, are built upon such places.

SEC. 22. *Minerals.*—The lands of the Southern Pacific Railroad Company include many valuable mineral deposits. Coal oil is abundant in Los Angeles and Ventura counties, and large quantities are shipped to the San Francisco market, after the home demand has been supplied. Deep and extensive beds of borax, soda, and salt, are found in the Mojave Plains. Asphaltum springs are numerous from Santa Cruz to Los Angeles. Gypsum is found at many places, and the finest alabaster, in Los Angeles county. Granite, sandstone and marble suitable for building, soapstone, sulphur, medicinal springs, gold, silver, quicksilver, copper, lead, and antimony, are also among the prominent mineral features of the region between San Jose and Fort Yuma, and all the minerals, save the metals mentioned in this section, go with the land.

SEC. 23. *Transfer of Title.*—The Company, from time to time, makes lists of the lands to which it is entitled, lying within thirty miles on either side of the line of its road. These lists, if found correct, are duly certified by the proper United States Land Offices, and forwarded to the Land Department at Washington, where they are again examined. Upon these the patent is issued, and thus the title of the Company is perfected.

SEC. 24. *Even Sections Retained.*—The minimum price of ordinary public land is \$1.25 per acre, or \$200 for a quarter

section of one hundred and sixty acres; but from the fact that the construction of railroads increases the value of the land in their vicinity, a general Act of Congress provides that when the alternate sections are donated to aid in the construction of a railroad, the remaining ungranted sections are increased in price to the "double minimum," or \$2.50 per acre, so that the even numbered sections within the limits of the grant of this Company can be purchased from the Government only at that price.

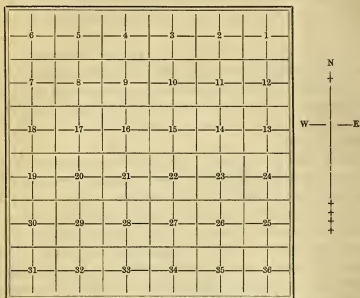
SEC. 25. *Federal Surveys.*—To persons not familiar with the public land system of the United States, it may be necessary to make a brief explanation of the manner in which they are surveyed, as, with an understanding of this, a definite idea will be had of the extent and situation of the Company's grant of lands.

The United States causes its lands to be surveyed by its officers into townships of six miles square; these townships are sub-divided into thirty-six sections of one square mile each—or six hundred and forty acres. Each section is again subdivided into four quarters of one hundred and sixty acres each, and again into sixteen quarter-quarter sections of forty acres each, which is the smallest quantity sold, except fractions on the borders of rivers, lakes, etc. In making these surveys in Central California, Mount Diablo, a prominent peak near the junction of the Sacramento and San Joaquin rivers, was selected as the initial or starting point, from which four lines were run—two north and south, called the meridian line, and two east and west, called the base line; and from these lines the several townships are surveyed, those north and south being numbered from the base lines 1, 2, 3, etc., north or south of the base line as the case may be, and those lying east and west described in the same way, as east or west of the meridian line. Thus, the city of Sacramento is described as being in township eight north, of range five east, of Mount Diablo base and meridian—that is, it is in the eighth tier of townships north of the base line, and the fifth east of the meridian line.

The Federal land surveys are measured from the base and meridian of Mount Diablo, for 32 townships or 192 miles southward from the summit of that mountain. From Tehachapi

Pass southward, Mount San Bernardino furnishes the base and meridian of the surveys to the Colorado river. Fort Yuma is in township sixteen south, range twenty-two east, base and meridian of Mount San Bernardino.

The following is a plat showing the manner of subdividing and numbering the sections in each township:



This diagram shows all the sections and quarter-sections in a township, the number of each section being placed in its centre. If the odd sections—that is the sections designated by odd numbers—were blackened, the diagram would look like a checker board. The odd sections touch each other at the corners, and as a section has six hundred and forty acres, the railroad company does not receive in its grant nor can it sell more than six hundred and forty acres in a compact body; nor can the Federal government sell more than six hundred and forty acres in a compact body within the railroad limits, but usually the settler cannot get more than one hundred and sixty acres of Federal land.

SEC. 26. *Advantages of Railroad Lands.*—There are decided advantages in buying from the Company rather than

from the United States. As a general rule the Federal lands in California are to be got only under the pre-emption or homestead laws, and cannot be obtained in larger tracts than 160 acres. Besides, the applicant must go twice in person to the Land Office—first when he files an application, and again when he makes his final payment—and on the last visit he must be accompanied by two witnesses to prove that he has made the improvements required by the law. Sometimes he finds the Land Register busy with other cases, so that he must wait several days with his witnesses before his testimony can be heard. Counting time and expenses for traveling and hotels, the settler often pays less for his land than for the trouble of getting it. He cannot, without forfeiting his title, lease, sell, mortgage or move away before he gets his patent, for which he must often wait a year after he has made his last payment. There is no such delay in getting the railroad title; no vexatious restrictions upon the purchaser. He can lease, mortgage, sell, or reside elsewhere, and he can buy as much as he pleases. It is not necessary that he should go in person to the railroad office, or make any affidavits, or prove citizenship, residence or cultivation. All these are required of the pre-emptor or homesteader, and the latter must wait five years before he has a right to a patent, and another year before the patent reaches him from Washington.

SEC. 27. *Terms of Grant.*—The first Act of Congress giving land to the Southern Pacific Railroad Company of California, was passed on the 27th of July, 1866, and provided for the construction of a railroad across the continent on the thirty-fifth parallel of latitude, by the Atlantic and Pacific Railroad Company. It gave to the Company a right of way of two hundred feet wide, and the land grant is thus expressed:

“That there be and hereby is granted * * every alternate section of public land not mineral, designated by odd numbers, to the amount of twenty alternate sections per mile, on each side of said railroad line, as said Company may adopt through the Territories of the United States, and ten alternate sections of land per mile on each side of said railroad whenever

it passes through any State, and whenever on the line thereof the United States has full title, not reserved, sold, granted, or otherwise appropriated, and free from pre-emption, or other claims or rights, at the time the line of said road is designated by a plat thereof, filed in the office of the Commissioner of the General Land Office; and whenever prior to said time any of said sections or parts of sections shall have been granted, sold, reserved, occupied by homestead settlers, or pre-empted or otherwise disposed of, other lands shall be selected by said Company in lieu thereof, under the direction of the Secretary of the Interior, in alternate sections, and designated by odd numbers, not more than ten miles beyond the limits of said alternate sections, and not including the reserved numbers."

These were, by Section 3, the terms of the grant to the Atlantic and Pacific Railroad Company for a railroad across the continent on or near the thirty-fifth parallel. Section 18 gave the same amount of land, ten sections on each side of the road per mile, to the Southern Pacific Company for a road from the Colorado near the thirty-fifth parallel to San Francisco. The plat, authoritatively fixing the line of the road under this Act, was filed in the office of the Secretary of the Interior, on the 3d January, 1867, and on that day the legal title of the Southern Pacific Company attached from San Jose to the Needles.

On the 3d March, 1871, Congress passed an Act giving to the Texas and Pacific Railroad Company a franchise and land grant for a railroad across the continent on or near the thirty-second parallel, and Section 23 of the Texas and Pacific Act authorized the Southern Pacific Railroad Company of California, to build a branch upon the same terms as those of the Act of 1866, from Tehachapi Pass, by way of Los Angeles, to the Texas and Pacific road at or near the Colorado River. The Southern Pacific Company filed its plat under this Act on the 3d April, 1871.

SEC. 28. *Climate*.—The following table presents the climatic figures at various stations on the lines and lands of the Southern Pacific Railroad Company, and also, for purposes of

comparison, it gives them in some of the representative cities of the Atlantic slope of our continent and Europe. The first two columns show the mean temperature, Fahrenheit, for July and January; the next gives the highest or maximum temperature of the hottest month; three columns show the minimum or lowest in the coldest month, and in those spring months when most harm is done in orchards and gardens by frost; another column gives the rainfall in inches in the year ending June 30th, 1876; the next shows the elevation of the rails at the station, in feet, above the sea; and the last has the latitude in degrees, without the minutes, so as to give an idea of the relative distances from the equator.

STATIONS.	TEMPERATURE.						RAIN FALL.	ELEVATION.	LATITUDE.
	MEAN.		MAX.	MINIMUM.					
	July.	Jan'y.		Jan'y.	April.	May.			
San Francisco.....	58	48	74	32	52	53	25	30	37
San Mateo.....	59	46	86	32	48	47	26	22	37
San Jose.....	69	46	95	31	42	48	15	86	37
Gilroy.....	78	41	102	23	44	50	31	193	37
Hollister.....	73	48	95	30	40	42	17	284	36
Pajaro.....	58	49	70	30	35	48	26	24	36
Salinas.....	65	47	80	32	46	50	19	44	36
Soledad.....	70	43	100	30	50	49	14	182	36
Los Angeles.....	75	52	93	35	51	60	22	265	34
Spadra.....	73	48	104	30	40	50	19	705	34
Yuma.....	92	56	113	26	46	46	3	140	32
Borden.....	89	42	110	29	42	44	4	274	36
Goshen.....	91	51	114	30	41	70	5	278	36
Tulare.....	88	42	119	29	40	60	6	282	36
Delano.....	86	47	109	30	56	54	3	313	35
Sumner.....	93	47	109	30	42	60	5	415	35
Caliente.....	92	46	104	30	45	50	4	1290	35
Milan.....	74	33	87	22	33	41	38		45
Nice.....	75	47	98	27	38	42	25	40	43
Dijon.....	70	33	88	15	25	34	40		47
Naples.....	76	46	95	31	44	48	27	55	40
Richmond.....	77	33	99	2	30	41	45	120	37
Chicago.....	63	10	86	—13	16	30	40	543	41
Cincinnati.....	77	21	95	—10	21	48	42	591	39
Savannah.....	82	39	98	22	37	62	45	60	32
Austin.....	84	36	84	14	46	54	40		30

SEC. 29. *Comparison with Eastern States.*—The minimum temperature of Cincinnati, in January, is 10 degrees—that is, 10 degrees below zero, or 42 degrees below the freezing point, or, as we say, 42 degrees of frost—whereas most of the valleys of California do not have more than two degrees of frost. The mean temperature of Cincinnati, in January, is 21 degrees, Fahrenheit, indicating that the average day in that month has 11 degrees of frost, whereas the average January day of every Californian station mentioned in the above table, is at least 22 degrees warmer than in Cincinnati. At Augusta (Ga.), in latitude 33 degrees, as we learn from Blodgett's Climatology, the thermometer has fallen to 4 degrees below zero, or 20 degrees below the greatest cold observed in this State at Marysville, in latitude 39 degrees. The figures for the southern coast of California, from Santa Barbara to San Diego, a distance of 150 miles, are nearly the same as those of Los Angeles, though in many places several degrees warmer in winter and cooler in summer.

Savannah, in the same latitude with San Diego, has a minimum temperature of 22 degrees in January and 37 degrees in April—figures considerably below those that prevail in the valleys of California. It is the severity of the occasional frosts that prevents the cultivation of the fig, orange, pomegranate, date palm, olive, eucalyptus, and other delicate plants, in South Carolina, Georgia, and Tennessee, though they thrive in the same latitudes on this side of the continent. Austin, further south than any part of our State, is much cooler in winter, than the Californian valleys, 10 degrees farther north.

SEC. 30. *Cool Nights and Dry Air.*—In two important points the foregoing table does not furnish the material for a fair comparison between the climates of the two sides of our continent in the same latitude. It does not show the difference in the temperatures of the summer nights, which are oppressively hot in the Atlantic States, and so cool in California as to secure refreshing slumber; nor does it give the difference in the atmospheric moisture, which has a great influence upon comfort in hot weather. The air is so dry in California that the perspiration is carried away rapidly, and thus the body is

cool; but on the eastern side of the continent, the abundance of moisture prevents or checks evaporation, and there is more discomfort with a temperature of 98 at Savannah than with 113 at Fort Yuma. Some portions of California have hotter summer days than Savannah, but nowhere in this State are the nights so hot, nor have we here any of the yellow fever which visits the seaports of the cotton States nearly every year. Sunstroke is unknown in California.

SEC. 31. *Comparison with Europe.*—Milan is the chief city of Lombardy, a province in which the fig, the olive, and the grape are extensively cultivated. Nice is the centre of a region considered more salubrious, at least in winter, for consumptives, than any other part of Europe. Dijon is in the champagne district of France. Naples is the typical city of the south of peninsular Italy. These four places are fair representatives of the climates of France and Italy; they can make no claim to superiority when compared with California. Many of our towns have warmer winters, cooler summers, and less frost in the spring. All the attractions that the clear skies of Greece and Italy have had from remote times for the natives of the cloudy north are possessed in at least an equal degree by our State.

The superiority of the climate of California over that of Italy has been mentioned by many noted travellers. The London *Spectator* says the climate of California and of Tasmania are "the nearest perfection in the world." C. L. Brace says "it is the most exhilarating." Samuel Bowles says "there is a steady tone in the atmosphere like draughts of champagne." Robert von Schlagintweit says "it is like Italy's climate except that it is not so enervating." It is a common saying that no people have so much local pride as the Californians, and none are so discontented when they have to move to another State or country. Much of their attachment to the land is caused by the geniality of its sky.

Fort Yuma has three hundred cloudless days in a year; San Bernardino has two hundred and seventy-five; Los Angeles and the southern part of the San Joaquin Valley two hundred and twenty; New York, one hundred and twenty; London, sixty.

SEC. 32. *Irrigation*.—The small rainfall from Goshen to Caliente, a distance of one hundred miles along the eastern side of the San Joaquin Valley, at its southern end, would indicate small hope for the agricultural value of that part of the State, if there were no other resource for moisture; but, fortunately, the Californian Alps, with several hundred miles of area on their western slope more than ten thousand feet above the sea level, lie alongside of this dry plain and catch vast quantities of rain and snow, valuable and convenient for irrigation. We have no observations of the amount of rain and snow on the Californian Alps, but we may assume, after adding an inch for each one hundred feet of elevation—figures justified by the observations elsewhere in the State—that the rainfall is one hundred and four inches in a season. The width of the western slope of the mountains is more than forty miles, giving for a length of one hundred miles a “catchment area” of four thousand square miles, and the average elevation being estimated at not less than 5,000 feet, an average precipitation of fifty inches, or more than four feet. One foot of water is considered sufficient for ordinary irrigation purposes, so that each acre of mountain catches enough water to irrigate four acres of valley; but a large allowance must be made for evaporation and waste.

The following are the catchment areas of the streams flowing down the western slope of the south end of the Sierra Nevada, as given in the Federal Irrigation Report, viz.: King’s river, 1,853 square miles; Kaweah river, 1,608 square miles; Tule river, 446 square miles; Deer creek, 150 square miles; White river, 140 square miles; Posa creek, 268 square miles; Kern river, 2,382 square miles; and Walker’s creek, 461 square miles—a total of 7,308 square miles. [On the western side of the Valley we find the following streams flowing into the San Joaquin Valley from the Coast Range, viz.: San Luis creek, 81 square miles; Banos creek, 125 square miles; Saucelitos creek, 71 square miles; Little Panoche creek, 136 square miles; Big Panoche creek, 118 square miles; Cantua creek, 164 square miles; and Gatos creek, 343 square miles—a total of 1,038 square miles of catchment area.

On the other hand, the plain is not so wide as the mountain

slope, and thus a considerable surplus is assured if the water can be caught and economized, as we know from the opinion of experts that it can. Few districts of equal size in the world can be irrigated at so little expense as a great part of the San Joaquin Valley.

American farmers generally have no idea of the value of irrigation in a country where there is not an inch of rain in average seasons from June to October, inclusive, and where even in the other seven months the annual rainfall does not exceed twenty inches in some parts of California. In the moist atmosphere, the wet summers and the cold winters of the Atlantic slope, they have never felt the need of supplying water to their fields by artificial channels. In Hindostan \$50,000,000 have been spent in irrigation works with great profit to the country; Lombardy and Piedmont have 1,600,000 acres under irrigation, and owe much of their wealth to their canals, and as the Federal Irrigation Commission says: "It is estimated that there have been expended for the irrigation of 1,000,000 acres in Lombardy, not less than \$200,000,000. This expenditure has been spread over seven hundred years, and has made Lombardy a garden." Lombardy has the best cultivation, the handsomest inhabitants, and the densest population in Europe. The reader may learn more upon these points by turning to the article on Lombardy in the *American Cyclopaedia*.

In Spain, which has a climate and soil similar to those of California, but more rain, and fifteen times more people in proportion to area, irrigated land is sold at various prices, from \$600 to \$2,500 per acre; while land not irrigated never brings more than one-fourth as much, sometimes not more than one-fourteenth. These facts are derived from the report of the Federal Irrigation Commission. Large districts in Southern California are better situated for irrigation than Italy or Spain.

Land which with wild grass and without irrigation will not support more than one sheep upon an acre, when irrigated and cultivated in alfalfa will support twenty, and if the alfalfa be not used for pasture it can be mown five times in a year, yielding two or three tons of hay to the acre at each cutting.

If cultivated in grain or common kitchen vegetables, two crops can be gathered in a year. Such facts suggest some of the reasons why irrigated fields command prices so much greater than can be got for dry lands.

Irrigating canals in Kern, Tulare, Fresno, Los Angeles and San Bernardino counties, have an aggregate length of not less than 800 miles, and considerable additions to them will be made every year.

SEC. 33. *Artesian Wells*.—In addition to the facilities for irrigation by canals from the snow-fed streams of the Sierra Nevada, and from collecting the winter rains in artificial reservoirs, much may be done with artesian wells, of which California has a larger number in proportion to her population than any other part of the world. Los Angeles county has more than three hundred, and of these eighty were bored in the first half of 1876. One throws up water enough to irrigate two hundred acres of land. There are several hundred in Santa Clara county; others in Fresno, Tulare, Kern, San Bernardino and Monterey.

Wind-mills are used extensively for irrigating fields in those places where the water stands within a short distance of the surface of the ground—that is, if water will not rise above the surface through artesian borings, which are cheaper in the course of years than wind-mills, even where surface water can be found by digging only ten feet.

SEC. 34. *Federal Irrigation Report*.—The Federal Irrigation Report made in 1874, by General B. S. Alexander, Colonel G. H. Mendell, and Professor George Davidson, treating of the Sacramento-San Joaquin Valley says:

“We elsewhere state that the area of the lands which may be readily irrigated is about 7,650,000 acres, and, if we include what are called swamp or overflowed lands, this area is increased to 13,300 square miles, or 8,500,000 acres; but if the low foot-hills are included, it is estimated that 18,750 square miles or 12,000,000 acres, are capable of irrigation. In the former case, the area of catchment outside of the lands to be irrigated, is between three and three and a half square miles to each square mile to be irrigated, while in the latter case it is about three square miles to one.

Now, if a monthly average of three inches of the rain-fall over the whole area of catchment was delivered during the rainy season by all the streams, they would furnish a supply equal to a monthly average depth of ten inches of water over the whole of the first mentioned area. Of course, in consecutive seasons of drought this amount would be much decreased.

From rough observations of the actual discharge of Kern River near the end of May, 1873, it was found to be equal to a depth of one and a half inches per month from the whole area of catchment of 2,400 square miles. This would give a depth of three inches for irrigation over 1,200 square miles, or 7,680,000 acres, which is larger than its natural irrigation district. Or to express the foregoing quantity in other terms, the Kern River in May was daily discharging a body of water equal to a stratum three inches deep over an area of 25,600 acres. The discharge was doubtless much larger from the middle of February to the end of March, when the waters of irrigation are most needed. These partial results are very suggestive and satisfactory, and we are convinced that the whole eastern side of the valley northward of the Kern River will yield more ample supplies of water.

The soil throughout the great valley is of the best and most readily worked character, but the Commission has not the data to enter into a detailed description of such an extensive region.

* * * * *

But it will not be the great valley alone which will be filled with people; the valley of every stream, large and small, will be cultivated with part of the water which will subsequently reach the lower lands.

This great basin should in twenty years become the granary of the world.

The effects of irrigation will be permanently advantageous, because, when the soil once becomes moistened it will subsequently require the application of less water for each crop, and when once a thorough and comprehensive system is adopted, the waters could readily be applied, if necessary, before the first rains to soften the ground and make it fit for the plow."

SEC. 35. *Stations via Northern Railway and San Pablo &*

Tulare Railroad.—The following table gives the names of the stations, their distances in miles and tenths of miles from San Francisco to Yuma on the Colorado river, and the elevation of the track at the stations, in feet, above the level of the sea, at mean high tide:

STATIONS.	DISTANCE. (MILES.)	ELEVAT'N. FEET.	STATIONS.	DISTANCE. (MILES.)	ELEVAT'N. (FEET.)
San Francisco...	0.0	5	Mojave	381.7	2,751
West Oakland...	5.89	15	Gloster	388.3	2,555
Lathrop	94.34	26	Sand Creek.....	395.5	2,315
Morrano	99.84	50	Lancaster	406.5	2,350
Ripon	104.56	72	Alpine.	417.4	2,822
Salida	107.58	74	Acton.	427.1	2,678
Modesto	114.34	91	Ravena	430.8	2,350
Ceres	118.65	93	Lang	439.3	1,681
Keyes	121.98	97	Newhall.....	452.3	1,268
Turlock	127.39	106	San Fernando Tl.	455.9	1,401
Cressey	137.49	136	San Fernando...	461.1	1,066
Arena.....	140.09	145	Sepulveda	473.6	461
Atwater	144.28	153	Los Angeles	482.2	265
Merced	151.73	171	San Gabriel	491.4	409
Plainsburg	161.64	209	Savanna.....	493.9	296
Minturn	168.00	242	Monte.....	495.3	286
Berenda	177.59	256	Puente	501.5	323
Madera	185.03	278	Spadra.....	511.5	705
Borden.	187.81	274	Pomona	515.0	856
Sycamore.....	196.80	300	Cucamonga	524.5	952
Fresno.	206.65	292	Colton.....	539.7	965
Fowler	216.23	308	Mound City	543.1	1,055
Kingsburg	226.70	300	El Casco.....	554.2	1,874
Cross Creek	234.79	278	San Geronio...	562.8	2,560
Goshen.....	240.6	278	Banning.....	569.0	2,317
Tulare	251.1	282	Cabazon.	574.9	1,779
Tipton	261.5	267	White Water....	583.4	1,126
Alila.	273.5	280	Seven Palms....	590.9	584
Delano.	281.8	313	Indio.....	611.7	—20
Poso	293.7	417	Walters.	625.0	—195
Lerdo	301.7	414	Dos Palmas	642.4	—253
Sumner.....	314.0	415	Frink's Spring...	653.3	—260
Pampa.....	329.0	872	Flowing Well...	671.0	+5
Caliente	336.3	1,290	Tortuga.....	677.0	183
Bealeville.....	341.6	1,793	Mammoth Tank.	683.1	257
Kecne	349.9	2,765	Mesquite.....	694.1	294
Girard	355.3	3,301	Cactus.....	707.9	396
Tehachapi Summit	361.7	3,964	Pilot Knob.....	721.5	285
Cameron.....	371.0	3,787	Yuma	730.9	140

The route of the Southern Pacific Railroad to the Colorado, at the Needles, diverges from the line running southward at Tehachapi Junction, 362 miles from San Francisco. The lowest point of the Mojave Plains crossed by the railroad survey is at the sink of the Mojave River, 141 miles from Tehachapi Junction; its elevation is 960 feet. The highest point is 3,935 feet, at the summit of Granite Pass, 186 miles from Tehachapi. The crossing of the Colorado at the Needles is 262 miles from Tehachapi, and the summer level of the water in the river there is 427, and that of high water about 443 feet above mean high tide.

The road running 'from Tehachapi southward, where it crosses the Colorado desert, passes below the level of the sea for a distance of about 61 miles, commencing about two miles northwest of Indio station, and descending by gentle grade for 24 miles to a depth of $266\frac{1}{2}$ feet, which depth is thence continued for $21\frac{1}{2}$ miles. From this point the grade ascends gradually for $15\frac{1}{2}$ miles, when sea level is again reached.

The level of summer water in the Colorado River, at Yuma, is about 110 feet, and high water about 125 feet, above mean high tide.

SEC. 36. *Stations by San Benito Pass Route.*—The railroad from San Francisco to Yuma by the route above indicated belongs to the Southern Pacific Railroad Company only from Goshen southward. From Goshen northward to Oakland it is the property of the Central Pacific Company. The Southern Pacific Company intends to complete a road on its own route by way of San Jose, connecting at Goshen, or at some point south of Tulare Lake, perhaps near Bakersfield. The following are the stations, with their distances in miles and tenths of miles, from San Francisco, and their elevation in feet, by way of San Jose, Tres Pinos and Huron, from San Francisco to Goshen :

STATIONS.	DISTANCE. (MILES.)	ELEVAT'N. (FEET.)	STATIONS.	DISTANCE. MILES.	ELEVAT'N. FEET.
San Francisco....	0.0	5	Santa Clara....	47.4	72
Bernal.....	4.6	186	San Jose.....	50.0	86
San Miguel.....	6.9	293	Eden Vale.....	57.3	180
Colma.....	9.2	171	Coyote.....	62.8	251
Baden.....	12.2	39	Perry's.....	65.8	299
San Bruno.....	14.3	15	Madrone.....	68.8	342
Millbrae.....	17.0	8	Tennant.....	71.5	327
Oak Grove.....	19.2	17	Gilroy.....	80.3	193
San Mateo.....	21.1	22	Carnadero.....	82.5	168
Belmont.....	25.1	31	Hollister.....	94.3	284
Redwood City...	28.6	9	Tres Pinos.....	100.5	514
Fair Oaks.....	30.9	48	San Benito Pass.	160.0	2,822
Menlo Park.....	32.1	64	Huron.....	199.9	367
Mayfield.....	34.9	28	Heinlen.....	217.2	211
Mountain View..	39.1	73	Lemoore.....	218.8	220
Murphy's.....	41.9	95	Hanford.....	226.8	242
Lawrence's.....	43.9	64	Goshen.....	240.0	278

In the distance of 100 miles between Tres Pinos and Huron, there are as yet no stations, but the summit of San Benito Pass, the elevation of which indicates the proposed level of the railroad grade, is the principal intermediate point.

SEC. 37. *Stations by Polonio Pass Route.*—At Carnadero, a branch turns westward, runs to Soledad, in the Salinas Valley, and will probably be extended, by way of Polonio Pass and South of Tulare Lake, to connect with that portion of the Southern Pacific already built, near Bakersfield. The following are the stations from Carnadero to Soledad, and the principal points from Soledad to the Junction in the neighborhood of Bakersfield:

STATIONS.	DISTANCE. (MILES.)	ELEVAT'N. (FEET.)	STATIONS.	DISTANCE. (MILES.)	ELEVAT'N. (FEET.)
Carnadero.....	82.5	168	Chualar.....	128.5	103
Sargent's.....	86.5	135	Gonzales.....	134.5	127
Sand Cut.....	94.2	93	Soledad.....	142.9	182
Vega.....	96.5	57	San Miguel.....	206.5	604
Pajaro.....	99.4	23	Polonio Pass....	242.9	1,726
Castroville.....	109.7	17	Junction.....	304.6	434
Salinas.....	117.6	44			

SEC. 38. *Advantages of Southern California.*—The following are some of the advantages of Southern California as a home for the immigrant: It has a large area as compared with the population; there are only two inhabitants on the average to the square mile, and if we count only the fertile land there are not more than six; whereas several European countries with a soil not richer by nature have one hundred to the square mile. Sparseness of population is an advantage, in so far as it implies a rapid increase, for it has always been observed that the immigrants will seek those districts where there is most room for them, and where consequently land is cheapest. The population of Massachusetts increases very slowly when compared with that of Illinois, because the latter State has fewer people to the square mile; and Illinois, having more inhabitants, does not gain as fast as California.

It is the proportion of increase that gives activity to business and profit to the ownership of land. Of course people can live in places where the population is stationary, but most Americans have never seen such condition of affairs, and have no desire to see it. They want to live in regions that are full of the go-ahead spirit of the nation. Such a region is Southern California. Illinois, which is one of the most prosperous and progressive States east of the Mississippi, has been gaining about four per cent. annually for the last ten years; Southern California has been gaining at least ten per cent., or more than twice as much. This rapidity of increase is a great attraction for settlement and an excellent assurance of the prosperity of the settlers.

It has only recently become accessible by rail. The cars made their first through trip from San Francisco to Los Angeles on the 5th of September, 1876; and before June, 1876, the trains from the former city did not go farther than Caliente. Now (April 1st, 1880), the railroad is in operation by way of Yuma to Tucson, in southern Arizona, whence it is rapidly pushing eastward to the Gulf of Mexico. The newness of these roads is proof that their attractive power upon immigration is still strong, and that the country must have business for many thousands of additional settlers, even if no more roads were to be built.

But other local railroads will soon be added, including, it is to be hoped, one hundred and sixty miles from Soledad, in the Salinas Valley, to a junction at or near Bakersfield; sixty miles from Anaheim to San Diego; a road to Santa Barbara and a road to Central Arizona.

SEC. 39. *Railroad from Texas.*—The construction of a railroad across the continent, near the Mexican boundary, is now a certainty. The Southern States need it as necessary to their prosperity. Although the country on the 32d parallel is not rich in its natural resources, yet it is six hundred miles away from the Central Union Pacific line, and it offers the best route for another iron track connecting the two oceans. The construction of a road across the continent on this line will bring a large amount of through trade to Southern California, and add greatly to its prosperity.

SEC. 40. *Railroad from Mexico.*—It does not require a long examination of the map and condition of Mexico to arrive at the conclusion that there must be a railroad from Mazatlan in latitude 23° to Yuma; and that this road leading through Los Angeles and Sacramento to Puget Sound must be one of the most-important channels of travel and trade on the continent. The high table land occupying the middle of the continent in Mexico presents great topographical obstacles to railroad construction, and besides has only a scanty population and scanty resources as compared with the plains, and it may be set down as certain that the main road connecting the southern part of Mexico with the United States must run near the coast on each side, one striking the Rio Grande near Matamoros, and the other reaching the Colorado at Yuma. The 9,000,000 present and 30,000,000 prospective inhabitants of Mexico, will do much to enrich Southern California, where they will find a pleasure resort more to their taste than anywhere else in the New World.

SEC. 41. *Activity of Business.*—The business of California is remarkably active, its exports amounting to about \$70,000,000, annually, or nearly \$100 to the person; whereas Great Britain does not export half so much relatively. The total annual production of the State is estimated at \$150,000,000,

of which one-sixth is permanent improvement in the way of houses, roads, canals, tree planting and clearing; one-sixth the yield of mines, quarries and mineral deposits; one-sixth wheat; one-sixth other agricultural produce, including wool, wine, fruit and domestic animals, and one-sixth the result of manufacturing industry. The State has \$75,000,000 in savings banks, and as much more in other banks; the dividends paid annually by corporations are about \$30,000,000; the sales of real estate amount to \$65,000,000; the coinage to \$30,000,000; and the sales of mining stocks to \$250,000,000. In wheat, wool, barley, wine, fruit, gold and quicksilver, California is the first State in the Union; in population at the last census (1870) it was the twenty-fourth.

SEC. 42. *Agriculture*.—Agriculture is now the leading industry of California, and it will doubtless maintain its preëminence in the future. Of the total area of the State, one-fifth is desert, and two-fifths are mountains, unfit for tillage, but with extensive districts, valuable for pasture, timber and minerals, leaving two-fifths susceptible of cultivation—though of this portion much cannot be used with profit till after it shall have been supplied with water by irrigation, protected against overflow by dykes, drained of its superabundant water, or made accessible by railroad. The State has 100,000,000 acres, including 43,000,000 of unsurveyed public lands, 47,500,000 of surveyed public lands, 8,000,000, of private grants surveyed, and 1,500,000 swamp lands surveyed. The entire area enclosed by fences is 6,200,000 acres, and of this little more than half, or 3,500,000 is cultivated. One acre in sixteen is enclosed, and one in thirty tilled. This looks like a very small proportion, but when we consider the brief time spent in reaching this condition, the fewness of laborers, and the fine quality of much of the work, it is relatively a large proportion.

About five times as many men are employed in England, and thrice as many in the Atlantic States, in cultivating the same area as here. A great proportion of our agricultural development is the work of the last twenty-five years, for in 1856 mining was the predominant industry of the State, and we had not then ceased importing flour.

SEC. 43. *Grain*.—The advantages of the State for small grain are that the same land can be cultivated for five or ten successive seasons in the same crop and never get foul with weeds; that the greater part of the soil is so manageable that from two to ten plows can be used in a gang; that the headers, as the machines most used for harvestings are called, can run with high speed over the large level fields; that few fences are required; that it is not necessary to have either barn, granary, or stack on the farm; that the crop when ripe is in no danger of damage from rain or hail, and can be left standing for weeks; that the grain, when ready to cut, in a few days becomes so dry that it can be thrashed, sacked, and shipped with safety, and instead of moulding on the voyage to Liverpool, gains in weight by absorbing moisture from a more humid atmosphere; and that, in case of necessity, the farmer can attach a thrashing machine to his header wagon, and send his crop to market the day after he cuts it. Usually several cargoes are shipped to Europe before July. The piles of sacks full of wheat lying in the fields in June and July, and similar piles heaped up near the railroad stations in August, September and October, are among the notable sights in the agricultural districts of California; but shocks, stacks, and barns full of unthrashed grain are rare. The wheat yield may be put down as 25,000,000 or 30,000,000 bushels, with the expectation of an average increase of 2,000,000 bushels annually. The wheat of California is hard, white, dry, and strong in gluten. The surplus is mostly shipped to England, where it is prized as among the best there obtainable.

SEC. 44. *Fruit*.—One of the chief wonders of California to the visitor from abroad is the excellence and multitude of varieties, the large size, the fine color, the abundance, and the long continued supply of fruit. The mildness of the climate permits the trees to grow with great rapidity, and to bear early; and it enables the temperate and sub-tropical species to thrive side by side. The date palm has a range of six degrees in California, some old trees being found in latitude 38 deg. 30 min. north, and it would probably thrive as far north as 40 deg., in which latitude the orange lives in the open air. The pome-

granate, the apricot, the nectarine, the fig, the olive, the European grape, which are too delicate for Tennessee or North Carolina, extend through eight degrees of our State ; and the guava, medlar, lime, lemon, pineapple, and banana have ripened in the open air on the southern coast.

ORANGES.

Orange culture is the distinctive industry of Southern California. The profits are large. A small orchard is certain to produce gratifying results, and the possessor of a few acres in orange trees is lifted above the ordinary drudgery of farm labor ; the climate is so mild that life is rendered more enjoyable than in other countries. There is no possibility of over production, as the area suitable for this class of farming is limited, and the market constantly increasing.

An experienced authority says that an acre of healthy orange trees, twelve years old, may be relied on for an income of \$1,000 per year.

RAISINS.

Raisin making is no longer an experiment in this State. That good raisins can be made to pay well is fully settled, and California raisins for some years past have been a standard commercial article. Nor does it require any great outlay to prepare for raisin making. The preparation is within the means of the smallest grower, and the process is simple and easily learned, and may be carried on in a small way just as successfully as on a large scale. Indeed, the small proprietors generally give to the business their immediate care and attention, and these are the principal requisites to success, the proper variety of grapes being possessed. In all raisin making countries nature furnishes the necessary heat, while man provides the means of exposure of the fruit in such a way as to secure the heat in the most effective manner.

This industry is highly remunerative. The work is so light and pleasant that the labor of women and children can be utilized.

OTHER FRUITS.

The climate of California is peculiarly favorable to the pear. The plum and cherry are not troubled by the curculio, or the

apple by the apple worm. Of the frost-proof fruit trees, as we may term the hardy varieties that thrive in Ohio, California has 340,000; of the sub-tropical species, including almonds, oranges, olives, figs, lemons, limes, English Walnuts, and apricots, 500,000; and of grape vines, 30,000,000.

The small proportion of moisture in the atmosphere, and of cloudy days in the year, and the restriction of heavy rains to a few months in the winter and early spring, give peculiar facilities for the drying of fruit, which is destined to be a prominent industry of the State. Sun drying in the open air and drying in Alden furnaces are extensively practiced. The former process will probably be preferred for figs, raisins and prunes; the latter for larger fruits, which must be cut so as to expose the pulp to the air in drying.

SEC. 45. *Minor Crops*.—Among the products of our State are rye, buckwheat, beans, peanuts, sweet potatoes, onions and flax; but the quantities are not large, and they require no special comment. The white, or Irish potatoes are remarkable for their large size, and the abundance of the product in the sandy, moist soil near the ocean. It is not uncommon to hear of single ones weighing three pounds, measuring more than a foot long, four inches wide, and two or three inches thick. Our hay is nearly all cut either from natural pasture, such as wild oats, or from unripe wheat or barley. The hop is cultivated extensively, and with much profit. The sugar beet is grown to supply two sugar beet mills. Cotton has been grown with profit, and may become important in the agriculture of California. About a thousand acres are cultivated in tobacco, which is cured under a new and ingenious plan, discovered and patented in this State. The cigars and tobacco, so far produced, are not uniform in quality, but some brands rival fine articles from Havana and Virginia, and they promise well for the future. The sandy soils, abundantly supplied with moisture suitable for kitchen vegetables, are of small extent, but no market has a better or more varied supply than San Francisco. Those vegetables which have brief seasons of a month or two on the Atlantic side of our continent, may be found here for six or eight months, and some of them throughout the year.

Among the plants that promise to be important, or are so already in California, and that are rare or unknown in the Eastern States or the Atlantic slope, are alfalfa (a variety of lucerne or clover, valued because it sends its roots to a great depth to reach the moist strata of soil), ramie, liquorice, madder, patchouly, the opium poppy, the caper, the carob tree, and many varieties of the eucalyptus.

ALFALFA.

A well known gentleman in Los Angeles county, engaged in the dairy business, says : " Forty acres of alfalfa will maintain " eighty cows the year through, and assure a constant and copious flow of rich cheese and butter, yielding milk for ten " months in the year from each cow. But in order to reach " these results the land must be uniformly what is called good " land here ; the stand of alfalfa must fully occupy the ground ; " it must be mown and not grazed, and promptly mown as soon " as a few scattering blooms appear, or from seven to nine times " a year, according as the soil is by nature warm or cold. Hay " of other forage plants may arrest the flow of milk, but alfalfa " hay excites it only in a less measure than the extraordinary " degree to which green alfalfa stimulates it. Alfalfa is green " and growing all the year. The dairy season is exactly as " long as the year. At nine cents a pound, the present uncommonly low price of cheese, the gross income of our herd " of cows averages 32 cents per cow per day ; 64 cents per " acre per day for 300 days in the year ; total amount \$184 " per acre per annum. The offal of the dairy is fed to hogs, " and the increase of the herd adds to the income. Hogs, as " an adjunct, pay better with the alfalfa dairy than with any " other, because the hog thrives on alfalfa alone, obviating the " necessity of going outside of the dairy offal, and of the " cheap fodder of the dairy cows for hog feed. The indispensable pre-requisites of the given results, in addition " to those already mentioned, are first-class cows and the best " management. Alfalfa is the most profitable soil product of " our valley, and by the dairy cow it is most profitably utilized. Alfalfa is to be preferred to other soil products, as much " on account of its certainty as a crop, as on account of its con-

“ stant and rapid growth and surpassingly nutritious qualities.
 “ It never fails. The accession of alfalfa is as sure and as
 “ steady as the accretion of interest, and the investment in al-
 “ falfa-producing land is as regular in its returns as that in
 “ United States bonds.”

SEC. 46. *Domestic Animals.*—The same climatic features that favor the growth of vegetation, are equally favorable to the domestic animals. The mildness of the winters enables cattle to thrive in the open air throughout the year, with no food save wild grass; and they reach their full size, and increase more rapidly than in countries where the winters are colder and where they must be supplied with shelter and fed with hay three or four months. In California the sheep generally, and many of the cows and horses, never go under roof or get any food that has been cultivated or handled by man. Yet, starting in 1853, the State now exceeds any other in the Union in the amount of its wool clip, and the shepherds expect to rear ninety lambs every spring from one hundred ewes. The blood of the herds generally is good, and it is a common opinion among Californian farmers that within a century, the Atlantic States and Europe will send hither to buy the finest specimens of horses, horned cattle and sheep. Some of the best thoroughbreds, American trotters, Clydesdales, Percherons, Durhams, Alderneys, Jerseys Ayreshires, Devons, Spanish Merinos, French Merinos and Cotswolds have been brought to our coast, and they have given us a stock that promises to multiply until all the inferior blood shall become extinct, and bids fair to improve upon the excellence of the imported sires. Intelligence, enterprise and money will co-operate to give us the best. Our stables and our turf now compare well with those of any Atlantic State, and some of the best running and trotting races on record have been made on Californian tracks and by Californian horses.

The Angora goat has been introduced in the expectation that it would breed more rapidly than the sheep, produce an equal weight of more valuable fleece, require less care, and thrive on coarser and cheaper food. The production of sheep's wool began in 1855, with ninety tons; reached 1,500 in 1860,

4,000 in 1865, 10,000 in 1870, 21,000 in 1875, and 23,450 in 1879. According to the annual report of the State Surveyor-General, in 1876, California had 240,000 horses, 5,000,000 sheep, 1,500,000 neat cattle, 26,000 Angora goats, and 218,000 swine.

SEC. 47. *Pleasure Resort.*—Southern California has become a favorite resort for pleasure seekers, and to them it owes a large part of its increase in wealth and population within the last six years. The attractions for such visitors will increase with time, as the orchards of oranges, lemons, olives, figs, almonds and dates, the vineyards and the gardens become more extensive, and as the additional railroads and other improvements stimulate business and provide greater facilities for travel. In Los Angeles, San Diego and Santa Barbara, the traveler will now find hotels which have few if any equals in Southern Europe for the excellence of their management and the completeness of all their arrangements.

SEC. 48. *Sanitarium.*—Fevers and diseases of the malarial character carry off about one-half of mankind, and diseases of the respiratory organs one-fourth. From such diseases many of the towns of the Southern coast are remarkably free. The dryness of the atmosphere prevents any malarious disease, and is also a great relief to consumptives. A comparison of the meteorological tables shows that the coast from Santa Barbara to San Diego has a better climate for consumptives than the famous Riviera or Mediterranean coast near Nice, which is considered the best place in Europe for them. Nice is not so good as Southern California in the winter, and is much worse in summer. Notwithstanding its climatic inferiority, the coast of the Mediterranean from San Remo to Hyeres owes a large part of its wealth to the throng of wealthy invalids with their friends from Northern Europe. Southern California will be enriched in the same manner.

SEC. 49. *Schools.*—No State in the Union spends more relatively on its common schools, or has a better educational system, or more competent teachers. The common schools are provided with libraries for the use of the children. The people generally are distinguished for their intelligence and

civility. Churches and benevolent associations are numerous, and Californian society lacks none of the influences that contribute to the refinement of manners or the enjoyment of life.

SEC. 50. *Wages*.—The wages of farm laborers are higher in California than in any other part of the world. The laborers get from \$20 to \$30 per month with board in winter, and from \$30 to \$50 in summer, and are always in demand. Servant girls for general housework are paid from \$15 to \$25 per month with board.

SEC. 51. *Land Monopoly*.—Some articles have been published in the newspapers to convey the impression abroad that the poor man has little chance in California on account of the holding of the land in large tracts by rich land monopolists. The average size of the farms in California is 482 acres; whereas the average for the Union is 153 acres, but the large size in California is explained by the fact that most of the land belonging to individuals is uncultivated, and used as wild pasture, and could not now be tilled with profit, and therefore cannot be sold for small farms. Many of the owners of these large tracts are anxious for the construction of irrigation canals and reclamation dykes which will fit the land for tillage and enable them to sell. In those places where irrigation has been practiced extensively for many years as at Los Angeles and Anaheim, the farms are smaller in average size than in any State east of the Rocky Mountains. The outcry about land monopoly has come from the politicians much more than from the farmers, who have no difficulty in finding land for purchase. The Federal census for 1870 shows that there are about two agriculturists for each farm on an average in California, Connecticut, Ohio and Nebraska; about three for two farms in Iowa, Illinois, Wisconsin, New York and Pennsylvania; about five for two farms in Massachusetts and Texas and four for one farm in Alabama and Georgia. There are 5,292,000 farmers and 2,659,000 farms in the Union, and 47,000 farmers and 23,000 farms in California, the number of farms being greater relatively in this State than in the Nation. These figures do not show monopoly.

SEC. 52. *Advice to Emigrants.*—

1. Buy your tickets for passage on railroads or steamboats only at the office, before starting. Many of the runners who offer tickets for sale in the streets are swindlers. If you intend to go in a steamer or a ship, examine the vessel before getting your ticket, and engage a particular berth or room in a part of the vessel that is clean, well ventilated and just comfortably warm.

2. Never show your money nor let any stranger know that you have any. Thieves prefer to rob emigrants, who generally carry money with them, and cannot stop to prosecute them, and have no acquaintance to aid in the prosecution. Do not mention the fact that you are an emigrant to persons who have no business to know it.

3. Never carry any large sum of money with you. You can always buy drafts at banks, and if you are going to a strange place, you can give your photograph to the banker to forward to your destination, so that you can be identified without trouble when you want to draw your money.

4. Avoid those strangers who claim to be old acquaintances, and whom you do not recollect. A certain class of thieves claim the acquaintance of ignorant countrymen whom they want to rob.

5. Do not drink at the solicitation of strangers. The first point of the thief is to intoxicate or drug his victim.

6. Do not play cards for money with strangers. In many cases they confederate to rob emigrants.

7. Travel in company with old friends, if possible, and do not leave them. Thieves prefer to take their victims one at a time.

8. If you see anybody pick up a full pocket-book, and he offers it to you for a small sum; or if you see some men playing cards, and you are requested to bet on some point where it seems certain that you must win; or if you see an auctioneer selling a fine gold watch for five dollars, don't let them catch you. Emigrants are systematically swindled by such tricks.

9. If, when you arrive in a strange town, you want information and advice, you can always get it by applying at the right place. First, apply at the office of the Immigration Society, if there is one. If you are a foreigner, you will probably find in the large cities a Consular office or a benevolent society of your countrymen, and you can apply there. Usually there are attentive and polite men at the police office. Public officers generally in the United States are ready to assist and advise strangers.

10. Engage in some business with which you are familiar; and if its conditions are different from those to which you are accustomed, commence slowly, so as to learn at little expense. The agriculturist from Europe or the Atlantic States must learn anew many things in his business here.

11. Never fear failure at farming on your own land, if you live economically, work hard, and select your place well.

12. It is better to be very poor for a few years on your own land than to be moderately poor as a tenant for others.

13. In selecting a home, look ahead. Care more for ultimate than for immediate success. Wherever there is a large district of fertile soil with a good climate, you can confidently settle down. It must fill up, and the land must rise in value. The fewer the people the better opportunity you have to select the most desirable spots, and when immigration comes in the greater will be the relative increase of population.

DESCRIPTIONS OF THE COUNTIES

IN WHICH THE LANDS ARE SITUATED.

SANTA CLARA COUNTY.

[Written for the WEEKLY CALL of Dec. 4, 1879, by E. M. ABBOTT.]

The Santa Clara Valley, which is included in Santa Clara County, is shaped something like an elongated horse-shoe, opening on the north into the southern arm of San Francisco Bay. Its entire length, north and south, is about sixty miles, with an average width, perhaps, of half that distance, from summit to summit of the double chain of the Coast Range of Mountains, which gracefully hold it as in the hollow of a great hand. The western slope of these mountains includes San Mateo and Santa Cruz Counties, the eastern Stanislaus and Merced, Alameda County on the north and San Benito on the south. This is regarded as the garden valley of the Pacific Coast, and its principal city, San Jose, which is the county seat, as the garden city of the West. The nearness of Santa Clara Valley to the ocean, and its separation from it by the western range of mountains, both have an influence on the climate. The western and northern breezes from the ocean and bay are sensibly more invigorating, having swept over the waters, and yet their harshness in Winter is greatly modified by the mountains, which also hold the fogs in check. The coldest weather in Winter here very nearly resembles the average October day in the Eastern States. Ice is rarely seen thicker than a window glass, and comparatively few Winter mornings have even a light frost. The heat of Summer is very nearly in the same proportion; a short time only is the heat excessive, and then only for a few hours in the middle of the day. The nights are delightfully cool throughout the year,

and nearly the same bed-clothing is requisite in Summer as in the Winter, and, with a fair amount of exercise during the day delicious sleep is assured.

THE LANDS AND PRODUCTIONS.

There are in Santa Clara County 832,000 acres of land. Fully three-fourths of this area is mountainous and sparsely inhabited; a great portion of it on the east side is being utilized for stock ranges. Horses, cattle, sheep and goats live on these hills, and in the ravines the year round, flocks of a thousand and upward being attended by a single shepherd. There are, however, on these same mountain sides many large and well cultivated farms, which produce large crops of wheat and barley, and all of the fruits of the temperate zone, as well as many that are semi-tropical. Fair dwellings dot the mountain sides and foothills, surrounded with orchards and gardens, which look in the distance like pictures hung upon a perpendicular wall. In Winter the background of this picture is woven in all the shades of green, darkly spotted here and there toward the summit with scrub oaks and stunted evergreens; for none of these luxuriant forests, which are a marked feature of the western range, are found on the eastern chain of mountains. If one is the fairer picture to look upon, the other can boast of its deeper riches in mines, forests and oil wells. Nature, always bountiful, if she withholds in one direction, bestows in another with a lavish hand. The land of the valley has every variety of soil, from the light sandy loam to the rich alluvial bottoms. On the west side, below the heavy-timbered region, from the foothills downward to the valley, the soil is a gravelly loam, especially adapted to the cultivation of the grape; and all other fruits flourish throughout the entire valley in perfection. In that portion known as the "foothills wine district," there are numerous vineyards; some of them very large, and all are remunerative. A farmer who has a well-cultivated grape-patch, of no more than ten acres, has a sure guarantee of a handsome income. One little vineyard, two miles west of San Jose, of only six thousand vines, brought last year nine hundred and fifty dollars for table grapes.

From the low, marshy land skirting the bay, there is a large

income realized every year from strawberries. Through the Summer season there are shipped from Alviso to San Francisco from thirty to seventy-five tons per day of this delicious fruit. It is hard to estimate the possibilities of such a soil in such a climate, when we consider that not a one-hundredth part of the land has been put to the test of its highest productive powers.

The total assessed value of the property in Santa Clara County is \$24,604,125; of this amount there is in real estate, \$16,502,660; personal property, \$2,948,915; money, \$203,420; improvements on real estate, \$4,949,130.

TOWNS AND VILLAGES.

Until the gold excitement of 1849, Santa Clara County was almost wholly inhabited by Mexicans and Indians. Considering, therefore, the fact that it is only thirty years since the only human habitations in the valley consisted of a few scattering adobe huts along the now far-famed Alameda, and at each extremity the present sites of the two beautiful cities—San Jose and Santa Clara—it is really surprising how many cities and villages have arisen, and to what extent the varied business projects have already reached. The largest and most important of these cities is San Jose, the county seat. Santa Clara is really a part of San Jose, and they are considered as one being only three miles apart from centre to centre, and connected by a horse railroad, through a shaded avenue, which is a continued city of palatial residences, and probably the most delightful drive on the Pacific Coast, if not on the continent. San Jose contains a population of 17,000 inhabitants, and Santa Clara 3,000. These cities, and the surrounding country for many miles, is a perfect garden, where roses bloom every month in the year. The markets are supplied with fresh vegetables and fruits from January till December. In short, if San Jose is not the Paradise of earth, the people think so, and that is fully its equivalent. Their reasons for self-congratulations on superiority of location, are many and well founded. That of climate, beauty and fertility of the surrounding country, and the variety and quality of productions, have already been enumerated as the most important. In addition to these, the trav-

elling facilities are an important item in a choice of location. San Jose is highly favored in this also. Being distant from San Francisco only fifty miles, and having a choice of three railroad lines, two on the east side of the bay and one on the west, the only difficulty is in which one to choose, for the scenery on each route opens a panorama of marvellous beauty. A stage line also connects with a steamer at Alviso, which makes tri-weekly trips through the year, and daily trips in the strawberry season.

EDUCATIONAL FACILITIES.

There are in San Jose seven public schools, employing thirty-seven teachers. The total number of school children is 3,431; total number enrolled, 2,329. Five of these schools have elegant and costly school buildings, situated in pleasant and healthy localities, with ample room for ornamental trees and shrubbery and convenient playgrounds. It is believed that no city in the State has a more thoroughly educated and efficient corps of teachers than San Jose. There are also numerous private schools and colleges. The University of the Pacific is located near the Alameda, about midway between San Jose and Santa Clara. The building is an elegant modern structure, costing over \$50,000. Connected with it is a young ladies' seminary.

The Academy of Notre Dame, the Commercial College, and a number of others, are giving efficient instruction in all of the branches of science, and the embellishments of music, literature, the arts, elocution, telegraphy, phonography and dancing. Of literary, debating, dramatic, astronomical and reading clubs, for both gentlemen and ladies, there is no lack. These associations are all liberally patronized by young and old.

The Library Association holds an important place in the educational facilities of the people, though all of the efforts of its patrons and friends to make it a free institution have thus far failed. Members only, who pay fifty cents per month, are permitted to enjoy its advantages.

THE STATE NORMAL SCHOOL

is located in the center of Washington Square. Its building,

an imposing structure, cost over \$200,000. From 500 to 700 pupils here find every facility, in a variety of departments, to add to their knowledge of books and training as teachers, that able instruction, standard works and apparatus can give them.

SANTA CLARA COLLEGE

has also a large share in the claim of this locality as the educational centre of the Golden State. To the educational advantages here enumerated, and the fitness of the locality, the people of Santa Clara County are no doubt largely indebted for the munificent bequest of the late James Lick, to be appropriated in the erection of a costly observatory on Mount Hamilton, for the purpose of astronomical observations. Arrangements are now nearly completed to put this monster enterprise to a practical test. Not the least of its advantages will be the employment furnished to laborers. Here the educated professors of the science of astronomy will congregate in future years, and their observations and discoveries will add incalculably to the accumulated store of the world's scientists in past ages. Through them and by personal observations all who will can receive a portion of that enjoyment derived from a contemplation of one of the grandest scenes in Nature, a view of her unbounded riches, spread out underneath in a medley of forms—colors, mountains, silvery waters, forests and fields, making a landscape indescribable in beauty—and overhead in the wonders and glories of the starry firmament.

The road to the summit of Mount Hamilton, which was one of the conditions of Mr. Lick's will, was constructed three years ago, at an expense to the county of about \$100,000. It is an easy grade, a distance of twenty-seven miles from San Jose. Its course, describing all points of the compass, is like that of the mariner "tacking" ship into port against a head wind. A hint, even, at description of the many objects of interest on the way—for every point and turn of the road opens a new view—would require a lengthy article of itself.

Each one of the towns and villages of Santa Clara County has not only its own peculiar industry or attraction, but all are gaining in wealth and population. Unlike many of the mining districts of California, there is not a "deserted village"

within its borders. The muse of the poet could find here many another theme on which to expand his genius, but not that. Of these towns and villages not already mentioned,

GILROY,

near the southern line of the county, is next in size, the population being from three to four thousand. It is a lively city, and has the best of foundations for future prosperity, a rich surrounding farming country. Dairying is the leading pursuit.

MOUNTAIN VIEW AND MAYFIELD,

both on the line of the San Francisco and San Jose Railroad, are also in the midst of a rich farming district and yearly adding to their wealth and importance.

ALVISO,

at the head of the bay, has the advantage of a shipping port, and is also a station on the narrow gauge railroad from San Francisco to Santa Cruz. Its steam flouring mill and large storehouses for grain, together with its extensive freighting business, which is quadrupled in the fruit season—and Alviso, with its few hundred inhabitants, never accumulates the rust of indolence.

MILPITAS, BERRYESSA, AND EVERGREEN,

all in a straight line with the Coyote River, and about equal distances from it on the east, lie near the beautiful foothills of the eastern range of mountains. The two latter, without the advantages of railroad or other public communication with the outside world, are a little world of themselves, and a charming one, too, if well-cultivated farms, gardens, singing birds, flowing rivulets, and Nature's smiles, have a charm in them.

SARATOGA,

in the western foothills, with its grand scenery, incomparable climate, its quantity and superior quality of fruit, (for it is in the warm belt), and its paper mills, holds an enviable position in this highly favored valley, both for its natural advantages and the addition of patient industry. Following around the south-western curve of the horseshoe-shaped valley, we come to

LOS GATOS, LEXINGTON, GUADALUPE AND ALMADEN.

Los Gatos is a fine place, and it has sensibly felt the quickening of new life which the narrow gauge railroad has given to all the towns through which it passes. Lexington is on the old stage road through the Santa Cruz Gap, nestled in among the hills, hidden from view till the traveller is right in the heart of the town, which consists of a hotel, a store or two, and a few shops. Nature must have been in one of her wildest moods—out on a grand frolic—when she fashioned the hills above Lexington. She threw them together with a perfect abandon of recklessness, leaving the deep gorge between, known as Santa Cruz Gap, the bottom of which is the bed of the Los Gatos Creek. Near here is the upper reservoir which supplies San Jose with water, owned by an incorporated company. The road from here to Santa Cruz winds like a serpent around these mountains, in some places with scarcely room for a carriage track, so frightfully near the edge of precipices as to be overpowering to timid people. The railroad finds a lower level, running for miles almost under the wagon road.

The Guadalupe Quicksilver Mine, though formerly very small, yields at present a sufficient quantity to warrant its constant working. The expenses of development, though enormous, will probably be compensated in time.

NEW ALMADEN

has become far-famed for the depth and wealth of its quicksilver mine. It yields near an average of one hundred thousand pounds per month, giving employment to seven or eight hundred men. The town, which is situated in a deep gorge of the mountain, is a beautiful place, bustling to the finger ends with activity. New Almaden is twelve miles south-west of San Jose, and connected with it by a daily line of stages.

* * * * *

THE OIL RESERVOIR IN MOODY'S GULCH.

The location of this newly-developed "mine of wealth" is in the township of Lexington, about one and a half miles southeast of Alma Station, on the narrow gauge railroad. The success of this enterprise is due to the unbounded perseverance

of Mr. McPherson, the President of the company lately organized for the purpose of prospecting. Mr. McPherson came to California about four years ago, as agent for Farrar & Co., of Buffalo, N. Y., manufacturers of engines and boring apparatus for the celebrated oil district of Pennsylvania. He turned his attention first to the Los Angeles district, where he spent his money and efforts without success. That he is now about to reap the reward of the patient application of years, is a matter of congratulation of his many friends. Soon after reaching a depth of 780 feet, which required five or six months hard labor, the out-pouring stream of petroleum ascended to a height of one hundred feet above the surface of the ground, pouring out a waste of one hundred barrels before it could be stopped. Oil is now being pumped at the rate of a barrel an hour.

If this discovery reaches the proportions that it is confidently believed it will, the Narrow Gauge Railroad Company will, not unlikely, build a branch road to the well or wells, from Alma station. Preparations are already completed to commence the second well.

NEWSPAPERS.

There are eight newspapers published in Santa Clara County, six of them in San Jose, one in Gilroy, and one in Santa Clara, all of them independent in politics except the two leading dailies in San Jose—the *Mercury* and *Herald*—the former Republican and the latter Democratic. The oldest of the eight papers, and the one having the largest circulation and influence, is the San Jose *Mercury*.

FRUIT CULTURE.

The leading productive industry of Santa Clara Valley is fruit culture. The Assessor's estimated value of the fruit crop of 1878 is \$500,000. Of this amount there are 33,325 acres of grapes, 1,450 bearing lemon trees, 3,150 orange trees, and 2,000 olive trees. There are also several large almond orchards, which, for some reason, are not on the assessment list. All of the other fruits included in this cash estimate can be grown in any part of California. The hundreds of fine orchards in Santa Clara County testify to the readiness with which apples, pears, peaches, plums, prunes, apricots, cherries, and nectarines

can be produced in any locality of the valley, the tops of the mountains being no exception. The carloads of fresh fruit sent to the East, and that which also finds a ready market in San Francisco, constitute but a tithe of the annual income of the crop. Two drying and one canning factories give employment to hundreds of women and boys, from May to November. These fruit preserving factories have made fruit growing a safe investment of money and labor, and they have given a sure guarantee to the several nurserymen of a handsome yearly income, besides securing a fortune for themselves. The number of cans and pounds preserved reach into the millions.

POPULAR RESORTS.

The principal watering place, and one most frequented by strangers, is the Gilroy Hot Springs, located in the foothills twelve miles east of Gilroy. A fine hotel, two score or more of cottages adjoining, with bathing accommodations, and the medicinal properties of the water, are the chief attractions. Here, through the hot season, visitors from abroad make a long gala day, and return to their homes refreshed in body and spirit.

ALUM ROCK,

seven miles east of San Jose, is a very popular place of resort for residents of the city, as also strangers who are pleasure seekers. Here are located white sulphur, soda, and other mineral springs. This delightful nook is a cañon, through which flows Penitencia Creek; a city reservation, containing 400 acres, reserved for a pleasure park. A hotel, a large dancing floor, underneath the grand old sycamore and evergreen trees, commodious bathing houses, and stables, constitute the main improvements. Otherwise, Nature has her own way here. A legal enactment prevents the use of firearms on the reservation, consequently the squirrels, quails and other birds are very much at home, picking up the crumbs that drop from lunch baskets with perfect assurance of protection. The avenue leading to this park is bordered with a double row of shade trees, making of it a fascinating drive, over a gravelled road as smooth as a house floor.

PUBLIC BUILDINGS.

Of the school buildings mention has already been made, under the head of educational facilities. The Court House is an elegant structure, erected at a cost of \$200,000. Its dome is visited almost daily during the summer season to obtain views of the surrounding country. It is the only place where the city can be all taken in at a glance, the shade trees obstructing the view from any other point. From this altitude a view spreads out worthy the pencil of a Raphael.

THE GENERAL FEATURES

of any particular locality, if fairly represented, are more reliable information than the minutiae of statistical figures, unless every article of production and manufactory, and their value, were placed side by side. It is the combined product of a very extensive variety of industries which constitute the wealth of Santa Clara County. It cannot properly be called a dairy country, and yet that constitutes a large item of income. Last year there were 115,000 pounds of butter made and 550,000 pounds of cheese, and there are numerous milk dairies also; but all of them combined are only a drop in the bucket of her income. Her population of 40,000 inhabitants are, as a rule, industrious and provident, and they enjoy the fruit of their labor in an eminent degree. If there are exceptions—the like of whom every country in the world drags along its share—it is, as a rule, their own fault; for the worthy poor in a country whose soil and climate offer everything that is requisite to a luxurious living are very rarely seen. When such cases do occur they are promptly relieved. Here mention should be made, at least, of the San Jose Ladies' Benevolent Society, with the labor of love they have accomplished within the past five years. They have erected for themselves a fame in genuine deeds of charity, more enduring than monumental marble.

Although Santa Clara County has never overdone any particular branch of industry, she now needs, in common with all California, more small farms and small farmers, with a still more diversified agriculture. Cultivation like that which France has given her soil, and ten thousand additional families could erect splendid homes within her ample borders.

SANTA CRUZ COUNTY.

Its Area, Resources, Inducements for Settlement and Establishing Manufactures.

[Written expressly for THE WEEKLY CALL of February 13, 1879, by W. W. BROWNING.]

Santa Cruz County, although one of the smallest counties in the State, is more celebrated for its manufactures than for its agricultural products, even though it embraces some of the richest land in the State, being the second in importance—San Francisco being first.

It is the second coast county south from San Francisco, San Mateo County lying between it and the city, and distant therefrom seventy miles by steamer—fare to Santa Cruz, \$3; freight, from 50 cents to \$1.50 per hundred pounds.

It comprises an area of 320,000 acres, of which 236,826 561-1000 are on the Assessor's books as taxable property, outside of the towns. Present population, about 16,000. It is a narrow strip of land of some forty miles in extreme length from northwest to southeast, by some fifteen miles in extreme width from the bay of Monterey, on the north side of which it lies, to the summit of the Santa Cruz range of mountains that separates it from Santa Clara County on the north. San Benito and Monterey Counties join it on the east.

Forty thousand acres are the richest bottom lands along the various streams (occupied principally as dairy farms), of which the principal are the Trancas, Waddle's, San Lorenzo, Soquel, Aptos, Valencia and Pajaro Rivers. Fifty thousand acres of agricultural land that forms terraced plateaus, as the land rises from the bay in benches, or steps as it were, back to the summit of the mountains. Loma Prieta, also called Mount Bache by first surveyors, lying northeast from the county seat, being a conspicuous land-mark, some eighteen or twenty miles distant, its highest point being about three thousand feet above the level of the sea. Snow is occasionally seen on its summit for a day or two in the rainy season.

The country is heavily timbered along the gulches and uplands, that sells readily from the stumpage at \$3 and \$3.50 per thousand. It contains one of the famous "big tree"

resorts, that is noted in the historical reminiscences of the county as being the place where General Fremont pitched his camp in 1846-7, when engaged in the conquest of California from the Spanish-Mexican rule—his old tan vats, cut out of a giant sequoia, being yet well preserved. In them he tanned the hides of the Mission cattle, whose pasture ground was the plat now occupied by the county seat of Santa Cruz, where they roamed at will by the thousands. The old Mission Santa Cruz and town Branciforte, being one of the oldest established in the country, was also one of the wealthiest in flocks and herds, their pasture lands remaining green and fresh throughout the entire year. On the uplands, although the grasses wither in the Summer season, they lose none of their nutriment, and cattle thrive equally as well as on the fresh.

Some 20,500 acres are in cultivation, that averages of wheat, 27 bushels to the acre; barley, 38; corn, 48; potatoes, 3½ tons, and sugar beets, 9 tons; 215,000 acres of mountainous land produce fabulous growths of redwood, oak, fir, and the finest quality of all varieties of grapes. Through this mountainous region runs a thermal belt, within which frost is seldom seen, even in the coldest seasons. As a consequence of the mild climate within the limit mentioned, strawberries bloom and ripen in large quantities in the open air at all seasons of the year; orange trees wear a perpetual livery of golden fruit and blossoms, and the delicate almond dons its fragrant dress of blossoms in February, when other sections of the country are hibernating, waiting for the Spring.

The taxable property of the county aggregates \$15,000,000, appearing on the Assessor's books only at \$6,309,724. Tax levy for 1878-9, \$136,281.

INTERNAL IMPROVEMENTS.

Two railroads are built from the county seat—the Felton narrow gauge road, going north, ultimately to connect with the S. P. C. R. R., now building from Alameda Point to connect Santa Cruz with San Francisco, to be finished inside of eight months, making the time four and one-half hours from point to point. The Santa Cruz Railroad, narrow gauge, running east, connects with the S. P. R. R. at Watsonville.

Still another road, it is said, will be built within the next two years, a broad gauge branch of the S. P. R. R., leaving that road in San Mateo County, and coming down the Coast Range, opening up the illimitable forests of redwood that intervene, making the time still shorter.

The San Lorenzo Flume, with a capacity for transporting 60,000,000 feet of lumber per season, connects the upper San Lorenzo mills and "tie" camps with the Felton Railroad, whence their productions are brought to tide water. There are five shipping points within the county limits; eleven saw-mills, with a capacity of 36,000,000 feet of lumber annually; five lime kilns, employing, when running, over two hundred men, producing the finest quality of lime in the country, supplying seven-tenths of the demand therefor, and capable of unlimited extension; four large tanneries turn out immense quantities of leather; the California Powder Works, located one and a half miles above Santa Cruz, on the San Lorenzo River, with side track connecting with the Felton Railroad, manufactures 12,000 kegs of powder per month; a glue and chair factory are located within the county, as well as a fuse factory; also four large flour mills, all of which are constantly employed; also a large beet sugar manufactory, making the finest grade of white sugar.

There is ample room for other manufactures, such as a good paper mill, tons on tons of straw being annually burnt to get rid of it, while paper rags have no market and are thrown away. A woolen mill and cloth manufactory would also find a fair field, as also wood-turning—possessing some of the finest grained woods in the world for cabinet or veneered work. The raisin and wine culture has grown to be a large industry, while there are a few large ranches yet unoccupied in the foothills, the owners of which would be glad to dispose of in small farms, or lease at a nominal rental. Value of land from \$10 to \$300 per acre. The titles to lands throughout the county have been generally settled, so there is not so much chance for endless litigation as in other parts of the State.

TOWNS AND HEALTH RESORTS.

The county seat, Santa Cruz, stands first and foremost,

having a population of some 5,500 of as intelligent and enterprising people as any in the State, situated at the mouth of the San Lorenzo River. The business portion of the town lies in a basin completely shut in by the bluffs and surrounding hills, so as to be completely sheltered from the cold ocean breezes and the "Northers" that are so trying in other portions of the State, while the bluffs give ample space for those who like the invigorating breezes and magnificent panorama laid out before them. Here the tired denizens of the crowded city, or the fugitives from fever-stricken districts, can come and build their eyrie to enjoy our genial climate, or camp on the bluffs and bathe in the grand Pacific's bottle-green waters to their heart's content, while a Spaniard, Italian, or a Chinaman, will present you with the finest rock-cod, salmon, herring, flounders, codfish, or any of the fancy fries so popular among the upper-tendom, if you are too listless to cast a line yourself. Highest average temperature throughout the year, 88°, lowest, 31° above zero. Santa Cruz has a municipal government, fire department, and all the various secret and benevolent institutions of other places, graded schools and as fine school edifices as any other town in California. Supports three newspapers, the *Sentinel*, *Item* and *Courier*, all weekly. Within a radius of eight miles there are at least three

MINERAL SPRINGS,

whose waters have secured a wide celebrity for their medicinal properties. One of them, the Aptos, iron and magnesia spring, being a specific for all bladder and kidney diseases, has a powerful cathartic and tonic effect combined, that makes it valuable where diaphoretic effects are required. The others are magnetic in their properties, and tonic principally. The attractions for health and pleasure-seekers in Santa Cruz and vicinity are unequalled in any other part of the world. Its chaotic gorges, lovely valleys, towering gigantic redwood redolent of resinous balsams, and the fragrant world renowned bay tree, whose leaves constantly distill their camphorated aromatic fragrance; stretches of voluptuous landscape that invites one to repose; sand and pebbly beaches on which the swelling surf chants its

perpetual and mighty refrain; incomparable picnic groves furnish the tourist continual pleasure and amusement, while interesting historic legends fill each vacant hour with unflagging interest. The bathing season lasts from May 1st to September; but did our Eastern tourists who hie away to the everglades of Florida and West Indies but know of the unrivalled magnificence of our Winter climate, would turn their steps hitherward and avoid the miasma of the Southern climate. Value of city lots from \$10 to \$1,500.

Watsonville the next largest town of the county, is situated on the Pajaro River, at the junction of the Corralitos, five miles from the bay, in the heart of the agricultural section of the county, east. It has a population of some 2,500, is a lovely, level, enterprising town, having two weekly newspapers, the *Pajaronian* and *Transcript*, a full Board of municipal officers, fire department, etc., with churches, secret and benevolent societies, and junction of the Santa Cruz Railroad with the Southern Pacific Railroad, that, during the bathing season, run extra trains to and from San Francisco daily. Value of town lots, same as Santa Cruz, nearly.

Soquel and Aptos each have their admirers as bathing and health resorts, being provided with facilities therefor, and a magnificent stretch of sandy beach for either walking or driving. Value of lots, \$10 to \$250.

Felton, on the San Lorenzo River, seven miles north of Santa Cruz, is the central point and depot of the extensive lime works in its immediate vicinity, and the junction of the Felton Railroad with the S. P. C. Railroad, now being completed to that point. This road traverses six tunnels in a distance of twelve miles from the Syanta Creek to the Los Gatos, in Santa Clara County. Tunnels Nos. 3 and 4 are together over 12,000 feet in length, and are to be finished by September 1, 1879.

Felton has free water. A magnificent mountain spring has been generously donated to the town, on condition that they erect and maintain their own reservoir and mains. It is also the terminus of the San Lorenzo Flume, that brings down the lumber from the mills above. Value of town lots from \$5 to \$300.

Lorenzo, some eight miles above Felton, near the summit of the mountains and the head waters of the river, is a delightful mountain town and great Summer resort; hundreds of camps being established amid the redwoods, whose white tents present a picturesque and weird aspect amid the balsamic evergreens, while the jocund laugh and merry prattle of lovely women and happy childhood mingles with the music of the dancing rills, transforming the mountain solitude into a very Eden of happiness and enjoyment.

Turn then, ye anchorites, who are soured by the follies and vexations of life, the uncertainty and exasperation of stocks; lay your cares aside and recuperate in our genial clime. Santa Cruz County presents more inducements to eastern and foreign manufacturers to locate within its limits than any other part of the West, with its cheap lumber, cheap fuel, unlimited water-power running to waste, cheap and convenient transportation, and proximity to the markets of the coast.

SAN BENITO COUNTY.

[Written for the WEEKLY CALL of Dec. 25, 1879, by L. T. BALDWIN.]

The County of San Benito, created by an Act of the Legislature in March, 1874, comprises all of that territory, formerly belonging to the County of Monterey, north of the Gabilan range of mountains. It is bounded on the north by Santa Clara and Santa Cruz Counties, on the east by Merced and Fresno—the boundary line being the summit of Mount Diablo Range—and on the south and west by Monterey County. It is eighty-one miles in length—lying in a direction northwest by southeast—averages about ten miles in width, and embraces an area of about 810 square miles. The

LAND

may properly be divided into four classes, as follows: First, about 25,000 acres of rich garden land. The soil is of a black

sandy loam, and will produce, in abundance, any kind of vegetation. Upon this fertile land are raised the fine vegetables which supply our market. Second, about 34,300 acres of first-class grain land, contained principally in what is known as San Benito Valley (the extreme southern portion of Santa Clara Valley). The soil is a black sandy loam or adobe, with a blue or sandy subsoil, and holds moisture well. It is principally from this land that the large amount of grain annually shipped from this county is raised. Third, about 46,000 acres of what is termed second-class grain land, situated in the foothills, and composed about equally of adobe and sandy soil. This land is not so strong as the valley land, but produces quite fairly, and in dry seasons is more sure of good crops than the richer bottom land. From this land is cut very fine hay, noted in San Francisco markets as "Hollister hay." Fourth, in addition to 105,300 acres capable of producing vegetables and grain, there is a large amount of hill land which makes very fine pasture. More or less of it is connected with many of the ranches in the valley.

The largest body of agricultural land comprises the San Benito and San Juan Valleys, which include all the land from the northern boundary line of the county to Tres Pinos on the south, a distance of twenty miles, and bounded on the east by the base of Mt. Diablo range, and by the base of the Gabilan Mountains on the west, with an average width of nine miles. This tract is watered by the San Benito and Tres Pinos Rivers, and covering an area of sixty-two square miles, contains about 39,000 arable acres, almost the entire valley being cultivated in grain. The soil partakes of the same characteristics as the land of Santa Clara Valley, except that it is many years younger; hence stronger and more fertile. Adjoining this on the east and next in size, is the Santa Ana Valley, with an area of fifteen square miles, containing about 10,000 acres, entirely given up to the production of grain.

Beside these there are numerous other fertile valleys in the southern portion of the county, the principal ones being the valley of the San Benito and Tres Pinos Rivers, Peach Tree, Bitter Water, Dry Lake, Indian, Priest, Chaloné and the valleys of the Estrello and Salinas Rivers. In all of these val-

leys there is more or less good agricultural and grain land susceptible of cultivation to advantage, but much the larger portion is better adapted to stock raising.

Lands may be generally classed and rated as follows: Vegetable land, \$60 to \$100 per acre, although some choice tracts in the immediate vicinity of Hollister are held as high as \$125 to \$200 per acre; No. 1 valley land, \$40 to \$60; second-class valley, \$25 to \$40; rolling land, \$15 to \$20; hill land, susceptible to cultivation, \$5 to \$15; pasture or mountain land, \$2.50 to \$5 per acre.

By referring to the County Assessor's books, we find the value of taxable land to be something over \$4,000,000, with improvements valued at \$563,200; personal property, \$531,800. The

PRODUCTS

include cereals of all kinds, hay, tobacco, flax, potatoes, with fruits and vegetables of every variety, wines and liquors, cattle, sheep and hogs, with wool, hides and tallow, dairying and poultry raising.

Wheat yields as well in this county, as in any section of the State, and flour made from it has no superior in the world. The average yield for a common season, on first-class valley land, is from thirty to forty bushels per acre; second-class valley, twenty to thirty; rolling land, from fifteen to twenty. Some seasons as high as seventy bushels per acre have been harvested in some localities, and sixty bushels is no uncommon yield. There are about 46,300 acres sown to wheat yearly with an average yield of 460,000 bushels.

Barley produces still better than wheat, first-class valley land yielding from 50 to 60 bushels; second-class, 40 to 50, and hill land 25 to 40. About 12,000 acres are cultivated yearly with barley.

The hay raised in the county, a large quantity of which is exported annually, is of the very best quality, and always brings the highest ruling prices in the San Francisco market. In a favorable season the yield is from one to two and a half tons per acre. About 3,500 acres are devoted to the raising of hay, with an aggregate production of 55,000 tons.

The culture of flax, previous to the past two years, has been

more of an experiment than a business in this county. Enough, however, has been demonstrated to prove that it can be produced with profit, and farmers are beginning to direct considerable attention to its cultivation.

INDUSTRIES.

Dairying proves quite profitable, and is carried on to a considerable extent, several large dairies being in operation at San Felipe, Paicines, and in the neighborhood of San Juan, milking several hundred cows, and giving employment to a great number of men and boys.

This county is peculiarly favorable to the raising of poultry of all kinds, hence large shipments of chickens, turkeys, geese, ducks and eggs, are daily made to San Francisco. This is found to be a very remunerative branch of industry. In addition to the dealers in common poultry, this county can boast of several yards of fancy fowls, in which are kept every species of blooded poultry.

There is no section of California better watered for stock purposes than this county. The San Benito side of the Gabilan range is watered by Bird and Thompson creeks—both fine trout streams—and with numerous springs along the mountain sides; while the San Benito River runs at its base, near Hollister, for seventy-five miles south, almost to the southern boundary of the county. On the San Benito side of the Mount Diablo Range are the Pacheco, Los Picachos, Santa Ana and other creeks, with the Tres Pinos River at its foot, and any number of fine springs of the purest and best quality of water.

Sheep, cattle and hog raising is here a very important and lucrative business, the larger portion of the southern part of the county being entirely devoted to this branch of industry. Large quantities of live stock with wool, hides, pelts and tallow are shipped from here annually.

FRUIT RAISING.

In general, it may be said that fruit raising is in its infancy in this county. Experiments have established, however, the complete adaptability of the soil and climate to the growth

and maturity of nearly every species of fruit, as there is no class of fruit that our people have attempted to cultivate that has not been perfectly formed, and that will not compare favorably with the choice fruit of the State. The many young orchards of this county are yielding a profitable return for the money and labor expended in their cultivation, and there is no doubt that in the near future fruits and berries will be produced here in abundance. Some of the oldest almond trees in the State are to be found here in this county. There are several trees of the different varieties on the old Pacheco place, seven miles from Hollister, that were planted over forty years ago, and still bear an abundance of the richest kind of nuts every season. At the almond orchard four miles east from Hollister, were planted four years ago some 40,000 trees, nearly all of which have grown finely, and are bearing an excellent quality of nuts. At the same time 20,000 apricot, plum, quince and nectarine trees were set out, which are also producing good fruit. The land of this county is peculiarly adapted to the growth of the English walnut. The black walnut, chestnut, pecan, filbert and other varieties also seem to grow well wherever tried.

MINERALS.

It is now pretty well settled that this county contains pretty good deposits of quicksilver and coal. Already several localities are producing the former in paying quantities. Prominent among the quicksilver districts are the Cerro Bonto mines, about forty miles southeast of Hollister, and the Stayton, Comstock and Mariposa mines, located twelve miles to the northeast. Coal has been found in different parts of the county, but as yet very little work has been done towards developing it. Experienced miners, however, from the samples and indications, are led to believe that it exists in large bodies.

GAME.

Hare, rabbit, grouse, quail, geese, ducks, snipe, and every variety of small game are plentiful, while California lions, bear, deer, etc., are found in abundance in the mountain range.

WATER.

Water is plentiful and can be obtained in any portion of the county, at a depth of from 10 to 100 feet. In some localities, notably of San Felipe, seven miles to the north of Hollister, artesian water is reached in abundance by boring to a depth of from 60 to 150 feet. There are already over 70 flowing wells in that vicinity.

The county is supplied with two good flouring mills—one run by water power on the San Benito River, twenty miles south of Hollister, and one steam mill in Hollister. The Hollister mill, owned by Shackleford & Hinds, is one of the finest in the State. It was built in 1872, by J. M. Browne, and is in every respect a substantial and model structure. It turns out at the rate of 150 barrels per day. The flour manufactured at this mill is of the most excellent quality, and has more than a local reputation, large quantities being shipped every season, per special order, direct to Europe.

Our market facilities are of a most excellent character. Besides the local market, which affords good prices for the quantity consumed, the town of Hollister, centrally located in the valley on the line of the Southern Pacific Railroad, is within convenient and easy distance from San Jose and San Francisco. Freight hence reaches these points in a few hours. Freight rates are \$3.50 per ton between Hollister and the metropolis.

The Theophile vineyard, situated about eight miles south of Hollister, in the foothills of the Gabilan Mountains, contains over 40,000 bearing vines, which produce large quantities of the most delicious varieties of the grape. Mr. Vache, the proprietor, who has owned the place for upward of twenty-five years, informs us that last year 20,000 gallons of wine and 3,500 gallons of brandy were made here. The fruit orchard contains over 600 choice apple, plum, peach, pear, mulberry and other kinds of trees, many of which have been bearing for years, and now produce abundantly of the choicest variety and best quality of fruits.

San Benito County also boasts of having the oldest orchard in the State. It was planted at San Juan soon after the old Mission of San Juan Bautista was founded, about the year

1775. The pear trees have grown to an immense size, and yet bear abundantly, the fruit being of the very best quality. The apple trees are yet bearing, but the fruit is very poor.

The soil of San Benito County also claims the honor of having sustained the first Ameaican flag of conquest that was ever unfurled to a California breeze. General Fremont having planted the American flag on Gabilan Peak in March, 1846.

The average climate of this county is the very best on the coast. The Winters are exceeding mild, snow never falls in the valley, and ice has never been known to form much thicker than a sheet of ordinary letter paper. Heavy and destructive frosts are also rare.

The Summers, owing to the cool, invigorating trade winds, which usually set in about the first days of May, and which never fail to fan the country daily during that season, are comparatively pleasant. These winds are not harsh and damp as along the coast line, and are scarcely ever violent enough to be unpleasant. There are virtually but two seasons here—Spring and Summer. Rains commence to fall usually about the middle of October, and continue at intervals until the middle of March, after which time there are occasional light showers until the first of May. Immediately after the first rains vegetation begins to sprout and grow, and from that time until June the mountains, hills and valleys are covered with a mantle of green, presenting a grand and beautiful appearance. The minimum temperature is 40°; the maximum, 100°; average, about 70°.

The health of this climate cannot be excelled in the world. Contagious diseases rarely find a lodgment, and by reason of the prevalence of the cool and fresh trade winds during the warmer season, it is entirely free from malaria; ague and like complaints being absolutely unknown here.

Hollister, the county seat, a thriving and prosperous town of some 4,000 inhabitants, is pleasantly situated in the centre of San Benito Valley, ninety-four miles distant from San Francisco, which is reached by way of the S. P. R. R. The Railroad Company have a fine passenger and freight depot here. Porter's grain warehouses, near the depot, have a stor-

age capacity of 8,000 tons. Hay warehouses, capable of storing some 3,000 tons, are also in close proximity to the depot, and connected to the main road by side tracks. Hollister is easily accessible to many different points of interest, such as watering places, sea-side resorts, mineral springs, hunting and fishing grounds, etc. Located as it is, in the midst of an exceedingly fertile agricultural district, surrounded by lovely scenery, in a delightful and healthy climate, within convenient and comfortable access of the metropolis, possessing all the advantages of an excellent system of town government, splendid water facilities, a well organized and effective Fire Department, flourishing, well attended academies and public schools, churches, banks, good hotels, well edited wide-awake newspapers, wide streets, good avenues, fine brick blocks, and all the necessary concomitants of an industrious, prosperous and well-ordered community, Hollister cannot but be recognized, as designed to be, one of the leading interior towns of the State.

San Juan is located seven miles to the west, and boasts an antiquity nearly equal to that of any town in the State, having been founded by the Franciscan Fathers at the private expense of the King of Spain on the 24th of June, 1785. It formerly was a mission for the conversion of Indians. San Juan now is a quiet, unpretentious town of some 750 inhabitants, about thirty business houses, a fine large school house, two hotels, a Masonic and Odd Fellows' Hall, and two churches. Surrounded by a very productive agricultural district, she is all that a prosperous farming community can make her in point of thrift and enterprise. The other and smaller towns are Tres Pinos, Paicines, San Felipe, San Benito, Erie and Emmet.

MONTEREY COUNTY.

[Written for THE WEEKLY CALL of Feb'y 6, 1879, by J. MERRITT, editor of the Castroville Argus.]

Monterey County is one of the largest counties of California, having an area of 3,600 square miles, or over two and a quarter million acres of land. The boundaries of the county are

as follows: On the north by Santa Cruz County and Monterey Bay, on the east by the counties of San Benito, Fresno and Tulare, on the south by San Luis Obispo County, and on the west by the Pacific Ocean. The distance by rail to its county seat, Salinas City, from San Francisco, is 117.6 miles, and from Monterey, also by rail, about 18 miles. Owing to the peculiar topographical character of the county, it has a great diversity of soil, climate and productions, making it, for purposes of settlement, one of the most desirable regions in the State. The population of the county at the present time is probably about 10,000 and the assessment roll for 1878 shows a total property valuation of \$7,185,195.

THE CITY OF MONTEREY,

which figured so prominently in the early history of California, is at the present time a quiet seaport town of a few hundred inhabitants, whose advancement, in view of the many and important advantages of its surroundings, has been predicted for, lo! these many years, and will not, let us hope, prove altogether a myth. It has a fine harbor, amply protected from the south, east and west, and with a breakwater from its northwestern shore, would afford perfect safety from all winds. The salubrity of the climate is well known, and to the visitor many points of interest in the vicinity invite notice, such as the Old Mission Church of Carmel, built in 1770, the really beautiful Point Cypress, the lighthouse at Point Pinos, and the Tassajara Hot Springs, about forty miles south of Monterey. The narrow-gauge railroad, built in 1874, connects the old Capital with the great Salinas Valley, and although the Salinas River intervenes, constant communication between Monterey and the valley has been assured by the construction of a substantial bridge over the stream mentioned. There is also regular steamboat communication with San Francisco, and at this moment an enterprise of great moment to Monterey and to the whole country is being pushed forward with all practicable speed. We refer to the development of the Monterey coal mine, located about eight miles south of the town, and the building of a railroad from the mine to Strader's Landing, a short distance below Carmel

Bay. The railroad is to be a trifle over four miles in length, and the work of grading, etc., now in progress, is being done, and will be completed with white labor exclusively. The locomotive has been ordered from Pittsburg, Pa., and the iron from the Pacific Rolling Mills, San Francisco. Of the quality of the coal, experts speak in the highest terms, and the large capital which has been and is being expended in tunnelling, and in the construction of a railroad must impress the public with the belief that the mine is a valuable one.

OTHER INDUSTRIES

could, beyond doubt, find a profitable field in the vicinity of Monterey. Tanneries, for example, hides and tanning materials being plentiful: woolen and cloth mills, and shoe factories. There is abundance of clay for bricks of good quality and for pottery; the sand is considered the best in the State for glass-making, and has been for years exported in large quantities to San Francisco for that purpose; and the openings for lime kilns, saw mills (one of these has recently been erected near the coal mine), and other manufacturing establishments are promised. Large shipments of edible fish are made daily from Monterey to San Francisco by several companies of Italian fishermen, and the whale fishery, established in 1854, is still a prominent, though declining, local industry. Two companies of whalers are stationed at Monterey, one company at the Sur and one at Carmel, and the mammals captured are principally of the "California Gray" and "Hump-back" species. A few miles back of Monterey lies

THE CARMEL VALLEY,

dotted with farm houses and dairy buildings. On this soil, which is very productive, were raised the first potatoes cultivated in California. Dairying and stock-raising are extensively engaged in in the valley. The planting of vines and almonds has been successfully tried here, while peaches, apricots, pears, nectarines, cherries and strawberries thrive well. In the mountain streams south of the Carmel River there is fine trout-fishing. Quails, rabbits and hares are abundant, and deer and bear are found in the hills and toward the

coast. The products of the valley are beef, butter, cheese, potatoes and pork, whale oil and dried fish being also extensively shipped. South of Monterey and along the coast there is a great extent of government land, all well watered and much of it having good soil.

PACIFIC GROVE RETREAT.

About two miles from Monterey are situated the Methodist Episcopal Encampment Grounds. The general arrangements of the encampment are fashioned after those of Ocean Grove, New Jersey, and are under the control of a Board of Trustees. They comprise 100 acres divided into residence lots, park, pleasure ground and streets and avenues. Several buildings, including preachers' stand, restaurant, laundry and stable, have been erected. Fronting the preachers' stand there are benches provided to accommodate about 5,000 people. The location of the grounds, which slope to the bay shore and are covered with beautiful young pines, is excellent. A grand Sunday School Convention has been announced to be held here next June. About a mile from the Retreat is the Point Pinos Light House, which is much visited, and is under the efficient charge of Allen L. Luce as keeper.

SPRINGS.

In addition to the Tassajara Spings, about forty miles south of Monterey, which are becoming more popular every year, there are Chalybeate Springs, near the mouth of the Carmel River, and near Soledad the present terminus of the Southern Pacific Railroad, the far-famed Paraiso Springs. At the last mentioned very comfortable accommodations have already been provided and the tide of visitors is constantly on the increase. A new road over the mountains to Tassajara has assisted travel to those springs, and we frequently hear of the wonderful sanitary virtue of the waters. The climate, both at Tassajara and Paraiso is incomparable.

THE SALINAS VALLEY,

lying between the Gabilan Range of mountains on the east and the Santa Lucia Mountains on the west, opens upon Mon-

terey Bay at the north, extending south from Moss Landing over 100 miles, and having a mean width of about ten miles. Its area, therefore, is about 1,000 square miles, or 640,000 acres of land. Through the valley runs the Salinas River, which has a quicksand bottom, and carries in wet seasons a large volume of water. The principal tributaries of the Salinas are the San Lorenzo and Estrella from the east, and the Arroyo Seco, San Antonio and Nacimienco from the west. The lands of the valley are divided into three classes: First—the heavy rich bottom lands, good for the growth of almost anything. This soil is mostly black adobe, and frequently contains just enough sand to make it work easily. These lands sometimes produce over 100 bushels of barley to the acre, and of wheat to the acre, over 65 bushels. Average crop of wheat on these lands, 35 bushels; barley 60 bushels. Second—The table lands, particularly well adapted to growing wheat and barley, of which grain the average yield per acre is 30 and 50 bushels respectively. These lands stand dry weather or a scant supply of rain better than any others in the valley. Third—The uplands, good for the production of wheat, barley, oats and rye. These lands lie close along the base of the mountains in the lower parts of the cañons and among the lower hills, and differ very much in quality in different localities. Some of this land is the best fruit land in the State, and will produce oranges, limes, lemons, peaches, apricots, almonds, figs, and the other fruits common to this section.

THE AREA OF LAND

cultivated in this valley at present is about 150,000 acres, and in average seasons about half a ton of grain (taking the whole acreage under cultivation) is expected to the acre. The rate of freight from Moss Landing is \$3.35 per ton, and storage for the season fifty cents. From the nearest railroad station, Castroville, the freight rate is the same, but increases at each station up the valley. There is no doubt that the Salinas Valley, in fertility and diversity of soil, has no superior in the State, and when we add to this a mild and healthful climate, its great area of tillable land, and its proximity to San Francisco, the commercial centre of California, easy transportation

and cheap freights, it may truthfully be said that there is no more inviting region on this coast. Several of the large ranchos have been and are being cut up and sold off, enabling men of moderate means to buy homes and improve them.

THE GABILAN MOUNTAINS

extend from the Pajaro River at the northern boundary of the county, through the entire length of the county. From the Pajaro River, going south, the first eighteen miles of the range are a system of low mountains, covered almost everywhere with grass and an abundance of timber. This part of the mountains is now nearly entirely occupied. The next thirty miles of the range is composed of high, rough mountains, which extend as far south as the San Lorenzo. From the San Lorenzo to the southerly boundary of the county these mountains are low rolling hills, forming the foot-hills of the Coast Range, and are about 20 or 30 miles in width. In this section are several beautiful little valleys, among which are Peach Tree Valley, Cholame Valley, Indian Valley, Long Valley, Priest Valley and several others, nearly all of which possess a rich soil. These valleys have a delightful climate, peculiarly adapted to the growth of semi-tropical fruits. The land is nearly all unsurveyed Government land, and at present is used chiefly in the stock business. The Gabilan Mountains, in their climate and adaptability, closely resemble the Santa Lucia, and contain immense deposits of limestone, as well as some quicksilver.

THE PAJARO VALLEY

is located along the northern line of Monterey County, and extends across the Pajaro River into Santa Cruz County. This valley has one of the most productive soils in the State, and the land here is for the most part owned by those who till it. The Pajaro River runs westerly through this valley, and finds an outlet in Monterey Bay. This section is separated from the Salinas Valley by a low range of hills that extend from the Gabilan Mountains to Monterey Bay, the climate being similar to that of the Salinas Valley.

PRICE OF LAND.

Farming lands in this county range in price from \$5 to \$150 per acre, according to quality and location. Bottom lands in the Pajaro Valley are worth from \$80 to \$150 per acre, while rolling and hill lands sell from \$15 to \$40 per acre. The low hill lands interspersed with small valleys, between the Pajaro and Salinas Valleys, vary in price from \$6 to \$25 per acre with improvements, there being of these lands 15,000 or 20,000 acres. The table lands of the Salinas sell at \$30 to \$60 per acre, while some sell as low as \$15; heavy bottom lands, \$50 to \$150 per acre. The uplands sell from \$5 to \$25 per acre. There is a vast quantity of unsurveyed Government land in the hilly and mountainous parts of the county now held by possession, and these tracts are frequently offered at low figures for the right of possession and improvements. This possession gives no fee to the land, but gives to the purchaser the right of occupancy until surveyed and then the first right to buy at government prices. The seemingly high prices of some of the lands above mentioned is easily accounted for when one considers that they are unsurpassed in productiveness, that the facilities for transportation are of the first and that we have a healthful and delightful climate. In 1874 there was sold in this county \$300,000 worth of land to men who had been renting and farming the lands they bought, and most of whom made the purchase-money from the land itself.

RENTING LAND.

A great deal of land is rented for farming purposes at \$2.50 to \$10 per acre, and many renters pay one-third or one-fourth the crop delivered. Much has been said and written concerning the renting system, but when one sees thousands on thousands of acres advertised for sale and no offers made, and this as to good land, well located and with a perfect title, it might be well to enquire what will the land-owner do with his land if he does not rent it—farm all his land himself or give it away?

IRRIGATION.

Until very recently this subject has attracted but little attention, because as a rule, irrigation has not been needed.

However, the means for irrigating large bodies of land in the Salinas Valley and other parts of the county are abundant and will gradually be availed of. Some of the Salinas River water has been diverted so as to run through Salinas City, and interest in the subject, since the drouth of 1876-7, has been increasing.

STOCK-RAISING

is still a prominent interest in this county, especially in the mountainous and hilly portions. The raising of cattle, horses, hogs and sheep is found profitable, and the breeding of Angora goats has been successfully pursued. The dairy business receives much attention in this county, a single establishment producing, but a few years ago, 200,000 pounds of butter, which yielded \$70,000.

SALINAS CITY,

the county seat of the county, is located on the Southern Pacific Railroad, about 118 miles from San Francisco, ten miles from tide water at Moss Landing, and eighteen miles by way of Monterey and Salinas Valley Railroad from the harbor of Monterey. The town is eleven years old and has a population of 1,700; is supplied with gas and water at low figures, and has a well organized and equipped fire department. There are seven church organizations, a good public school employing seven teachers, and lodges of Odd Fellows, Free and Accepted Masons, and of the Ancient Order of United Workmen. It has a flouring mill, a foundry and two weekly newspapers, the *Index* and *Democrat*. The new Court House here, costing about \$60,000, is nearly completed and will be a handsome structure. In the vicinity of the town are located the grounds of the Monterey Agricultural Fair Association, which it is stated, intends making arrangements for another fair this year. Salinas City is a prosperous town and its business men are noted for their enterprise and business shrewdness.

CASTROVILLE

is located on the Southern Pacific Railroad, two and a half miles from Moss Landing, fifteen miles northeast of Monterey and eight miles north of Salinas City. It has a population of

about 500, possesses good school facilities, three teachers being employed, and has two churches, also lodges of Odd Fellows, Masons and Good Templers. Among other establishments the town has a flouring mill and a weekly newspaper, the *Argus*. The town is immediately surrounded by fine agricultural lands, well watered, while to the east of Castroville, about three or four miles distant, there are large tracts of grazing and timbered land and land suited to the growing of fruits and vegetables. The average yield of the lands adjacent to town is, of wheat, 30 bushels per acre, and of barley, 50 bushels; one hundred bushels of barley per acre have been raised in some cases. The health of the town is exceptionally good and the climate mild and healthful.

OTHER TOWNS.

Santa Rita is situated about three miles north of Salinas City; at this place is located the County Hospital. Natividad is situated at the foot of the Gabilan Mountains, six miles northeast of Salinas City. Chualar is a new town, located on the Southern Pacific Railroad, ten miles southeast of Salinas City. Gonzalez, on the same railroad, seventeen miles southeast of the county seat, and Soledad, the present terminus of the railroad, is twenty-five miles from Salinas City, and 142.9 miles from San Francisco.

NOTE—In the preparation of this article, Butler's "Resources of Monterey County," and Walton & Curtis' "Handbook of Monterey," both reliable and valuable works, have been freely drawn from in the presentation of statements appearing in those works, and known by the writer to be accurate.

STANISLAUS COUNTY.

The Banner Wheat-Growing County of California—A Glimpse at a Portion of the Great San Joaquin Valley.

[Written for the WEEKLY CALL of January 8 and January 15, 1880, by L. C. BRANCH.]

Stanislaus County can truly boast of being the banner wheat-growing county of California. The statistics of the past few years have placed her first upon the list. This county though

one of the older and more prominent among the mineral counties of California, boasting at one time of her great mineral resources, quietly anticipating the great and important part she was to play in the future development of the resources of the great State of which she formed an integral part, and patiently waiting the march of time to do justice to her hitherto unrevealed wealth, has, up to the present time, been comparatively little written about for the information of the immigrant who is continually seeking our shores, or even to the enlightenment of the people of other portions of our State. We have been frequently embarrassed when visiting other parts of the State, by the inquiry: "Stanislaus! Where is that?" and have more than once resolved that when opportunity offered, we would publish, for the information of all, a description of the county, its resources, etc.

Until the fall of 1870 this county had no rail communication with the great commercial centres of California. The stage and steamer lines had unlimited sway as means of transportation and communication with other parts of the State.

The county is now traversed by three different lines of railway, the most extensive of which is the San Joaquin Valley division of the Central Pacific Railroad. This division leaves the main Central Pacific at Lathrop, crossing through the central portion of the county and continuing southward, through Merced, Fresno, Tulare, Kern and the southern counties, affording communication 300 miles.

The Stockton and Copperopolis Railroad leaves Stockton and crosses through the northern portion of the county, terminating for the present at Milton, in Calaveras County.

The Stockton and Visalia Road also extends through the northern part of the county, crossing toward the east, and at present has its terminus at Oakdale, about a mile from the Stanislaus River. By this means the county is now placed within three and four hours' ride of the most important cities in the State, and where before three or four days were consumed in reaching the metropolis, and the capital, now, with the facilities offered, four hours bring us in contact with the busy circles of either.

LOCATION.

Stanislaus County forms a part of the great San Joaquin Valley. It is bounded on the north and northeast by Calaveras, Tuolumne and Mariposa, on the south and southeast by Merced, on the southwest by Santa Clara and Contra Costa, and on the north and northwest by San Joaquin. Its eastern boundaries extend into the foothills of the snow-capped Sierras, and its western to the summit of the Coast Range, near Mount Hamilton. Passing through its very heart, within sight of each other, wending their way to the great Pacific, are the San Joaquin, Tuolumne and Stanislaus Rivers. The two former are navigable at certain seasons of the year. The county was organized in 1854, being formed out of a portion of Tuolumne county. It comprises an area of 1,350 square miles, or about 800,000 acres of land, three-fourths of which are susceptible of cultivation. Within its boundaries is situated one of the most fertile valleys in the world, yielding productions varied in their character and marvellously vindicating the nature of her soil.

Wheat, barley, oats, rye, corn and potatoes, are the staple products. Cotton and hops are cultivated successfully in some parts, and the rich bottom lands along the rivers are well adapted to their cultivation. All kinds of fruit are successfully raised, oranges, lemons, limes, pomegranates, olives, peaches, apples, pears, almonds, walnuts, chestnuts, hickory nuts, peanuts, and grapes of the finest quality. From the latter is made some of the best brands of wine in the State.

The Red Mountain Wine Company, Pentland Bros., and W. E. Stewart, near Knight's Ferry, in the northeastern part of the county, are constantly furnishing the San Francisco and New York markets with most excellent brands of this beverage. They also make a fine quality of brandy. The earliest fruit in the State comes from the orchards of Stanislaus. Along the banks of her rivers, growing in luxuriant abundance, are to be found the wild grape and blackberry, which are eagerly sought after as luxuries in their seasons. Alfalfa is easily cultivated, and its yield prolific. Wool-growing is successfully and extensively carried on in the foot-hills, where

thousands of sheep get pasturage from unsurveyed Government and railroad land.

The greater portion of its surface is one level, unbroken plain, extending as far as the eye can reach. This plain extends fifty miles in width and sixty in length, and embraces within its limits some of the very finest agricultural land in California, and presenting, when under cultivation, a sight to behold. Imagine yourself riding a circuit of three days through a continuous space of waving grain. Such are the plains of Stanislaus just before harvest. The seasons here are wet and dry. The climate does not vary much throughout the county, and in temperature is about the same as that of the Santa Clara and Sacramento Valleys.

The summer heat ranges between 80 and 110 degrees, seldom reaching the latter extremity. The winters are mild and purely temperate, the thermometer varying from 30 to 70 and 80 degrees, rarely going below 30.

In summer the nights are pleasant and delightful. A gentle breeze sweeps over the valley from one end to the other; it comes from the coast, and in a very great degree adds to the salubrity of the climate. The climate is considered very healthy, and of late many tourists and visitors from the East in search of health have added their attestations to this fact by settling with their families here and influencing their friends to come. There is comparatively little sickness, and where it does prevail it is owing to other causes than the climate. In some of the mining districts, where irrigation is carried on extensively, chills and fever have become prevalent. But even this form of malaria vanishes before the cool, invigorating and healthful breezes of the valley. Old pioneers, who came here in '49 and '50, still retain their vigor and exhibit manly specimens of robustness and health. Many of them have reached their three score years and ten, and seem well preserved for another quarter. A generation has grown up in the county since its settlement and organization, who, with the rising generation, are remarkable for their good constitutions, sturdiness of limb, the perfect symmetry of their forms, and the bloom of health upon their cheeks.

STATISTICAL.

Few counties in the State can show a like ratio in increase of wealth, in proportion to population, as Stanislaus.

The following table shows the assessed value of property for 26 years:

INCREASE OF WEALTH.

1854.....	\$ 577,973	1865.....	\$ 888,419
1855.....	642,988	1867.....	2,412,303
1856.....	642,422	1869.....	3,047,063
1857.....	665,182	1872.....	7,105,963
1858.....	750,000	1873.....	6,441,864
1859.....	736,662	1874.....	7,449,560
1860.....	969,870	1875.....	7,436,470
1861.....	861,912	1876.....	5,991,605
1862.....	861,912	1877.....	5,425,116
1863.....	861,217	1878.....	6,232,441
1864.....	824,152	1879.....	6,100,069

STATE AND COUNTY TAXES.

The following are the rates of State and county taxes levied upon the people of Stanislaus for each year since 1863:

1864 (on each \$100)...	\$3 33	1872 (on each \$100)...	\$1 50
1865.....	3 05	1873.....	1 56
1866.....	2 98	1874.....	1 65
1867.....	2 87	1875.....	1 40
1868.....	2 37	1876.....	1 65
1869.....	2 30	1877.....	1 65
1870.....	1 87	1878.....	1 53
1871.....	1 86	1879.....	1 60

The population of Stanislaus County is now estimated at between 10,000 and 12,000. The present rate of taxation is lower than any county in the State except Colusa, Monterey, Sacramento, San Benito and San Joaquin.

Productions for 1878:

AGRICULTURAL.

Land cultivated, acres.....	374,870
Wheat, 300,000 acres; bushels.....	5,000,000
Barley, 60,000 acres; bushels.....	1,500,000
Rye, 7,500 acres; bushels.....	75,000
Corn, 478 acres; bushels.....	20,950
Peanuts, 5 acres; pounds.....	7,500

Potatoes, 100 acres; tons.....	120
Sweet potatoes, 3 acres; pounds.....	18,000
Onions, bushels.....	1,000
Hay, 6,757 acres; tons.....	8,689
Hops, 30 acres; pounds.....	15,000
Butter, pounds.....	13,200
Cheese, pounds.....	3,000
Wool, pounds.....	1,513,830
Honey, pounds.....	2,000

FRUIT.

Value of fruit crop.....	\$11,500
Bearing lemon trees.....	60
Bearing orange trees.....	200
Grape vines, acres.....	140
Wine, gallons.....	55,950
Brandy, gallons.....	920
Breweries.....	3
Beer, gallons.....	32,000

LIVE STOCK.

Horses.....	21,300
Mules.....	1,463
Total number of horned cattle.....	5,228
Sheep.....	31,014
Cashmere and Angora goats.....	456
Hogs.....	5,853

IMPROVEMENTS.

Grist mills.....	2
Barrels of flour made.....	14,400
Mining ditches.....	2
Miles in length.....	9
Irrigating ditches.....	2
Acres irrigated.....	1,300
Estimated population in 1879.....	12,000
Registered voters in 1879.....	3,000

County scrip on the General and Hospital Funds is worth 98 and 99 cents on the dollar.

The county indebtedness is \$70,000.

Cash on hand in county Treasury, December 1, 1879, \$10,-372.73.

Estimated value of Court House grounds, \$60,000.

County Hospital and grounds, \$5,000.

The Court House is situated in a square 300x400 feet, and has obtained a reputation abroad for the beauty of its architecture and the symmetry of its grounds. These grounds are handsomely laid out into well-curved walks, and interspersed here and there with many different varieties of trees and shrubbery, presenting a lovely appearance, and being a favorite resort of the populace. Its architect was A. A. Bennett, of San Francisco, and it was built by Robinson Bros., of Stockton.

The Hospital grounds are situated about a mile from the county seat, in sight of the town, and comprise about twenty acres of valuable land. The Board of Supervisors now contemplate the beautifying of these grounds at an early day. About one acre surrounding the main building has already received considerable attention, presenting a beautiful appearance with its evergreens, flowers, shrubbery and fruit trees of all kinds. The patients raise their own vegetables, and find many hours of useful employment about their home. Major James Barney, who was Hospital Steward for over three years, made many improvements which now begin to add to the beauty of the place.

FARMING LANDS.

Stanislaus County is in every sense an agricultural county. She produces, on an average, over 5,000,000 bushels of wheat, and cultivates 400,000 acres, and upwards annually. Her lands are naturally sought after for agricultural purposes. The farming lands lie in every portion of the county, except the more mountainous. The soil varies in character, from a heavy black rich soil to the sandy loam, and averages throughout from twelve to fifteen bushels per acre, in some places producing as high as fifty and sixty. There is no vacant agricultural land in the county. All of it has been taken up. Large tracts are held by Charles McLaughlin, Timothy Paige, John W. Mitchell, Threefell Bros., J. D. Patterson, R. M. Wilson, E.

B. Beard, John Murphy, Mrs. R. P. Ashe and others. Its price varies according to location. Good land in a central location is held at from \$15 to \$25 per acre. In other parts of the county land can be bought at from \$5 to \$10. The railroad company sell their grazing land at \$2.50 per acre. Good terms can be had in purchasing. The following, from the *Stanislaus News* of December 12th, will give an idea of the profits of farming in this county. That paper says:

"We have frequently been applied to by persons residing in other parts of this State, as well as in the East, for information respecting profits realized by our farmers. As an explanation to all such queries, we have applied to an intelligent farmer near this place for a statement of receipts and expenditures, which we herewith give. The farm is within three miles of Modesto, and consists of 640 acres of land. The yield for the present year was supposed to be about an average of this section of the county:

Value of farm.....	\$12,800
Value of teams and implements.....	2,000
Total valuation of property.....	\$14,800

EXPENSES.

Hired help.....	\$300
Seed wheat.....	280
Cost of sacks.....	285
Cost of threshing grain.....	470
Cost of feeding teams.....	360
Total.....	\$1,695

RECEIPTS.

Wheat sold in December above cost of storage.....	\$6,408
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"The farmer informs us that he has reserved from his crop sufficient for both seed and feed for next year, which should be added to the receipts, and which would swell the total amount for the year in the one item of wheat to \$6,988. This gives us as a balance above expenditures the sum of \$5,293. Of course, the farmer's work should also be deducted. Yet there were other profits from productions of the farm, such as vegetables,

fruit, hogs and fowls, which would probably swell the amount to more than enough to compensate him for his own labor. We have, then, for the year a profit from farming of \$5,293 on 640 acres of our plain lands. And it should also be remembered that the past season was comparatively a dry one, nor was the soil cultivated any better than the average of our, lightest lands."

MEXICAN GRANTS.

Stanislaus County, like all the southern counties in the State embraces within its limits several of those large grants of land made by the old Mexican Governors in the early days of California, and which have passed into the history of the State under the name of "Mexican Grants." There are five in this county, as follows: The Thompson Rancho, comprising eight square leagues of land, 35,532 80-100 acres; Rancho del Rio Estanislau, containing eleven square leagues, or 48,886 64-100 acres; Rancho El Pescadero, containing eight square leagues, *Ocho sitios de granada mayor*, or 35,446 6-100 acres; Rancho del Puerto, containing three square leagues, or 13,340 39-100 acres, and a portion of the Oristimba Rancho, the other portion being situated in Merced County. This rancho contains in all 26,666 39-100 acres. The two former of these are situated in the northeastern portion of the county, extending their boundaries to the river Stanislaus. The three latter lie on the west side of the great San Joaquin river. Their titles have all been confirmed by the United States Government, and many a farmer is fortunately in the quiet and peaceful possession of a home and small farm upon the subdivided tracts of these large ranchos.

TOWNS.

Modesto, the county seat, is situated near the centre of the county, on the San Joaquin Valley Division of the Central Pacific Railroad, sixteen miles from its junction with the C. P. R. R. at Lathrop, thirty miles from Stockton, and one hundred and two miles from San Francisco. The town was laid out by the Contract and Finance Company in the year 1870, being now nine years old. It is situated in the centre of one of the finest wheat growing sections in the State, and has made rapid

progress within the last few years, now having a population of about 3,000, which is rapidly increasing. Buildings are springing up on all sides, and no town in the State can to-day show a like prosperity in proportion to population.

The town contains many very beautiful buildings, both public and private. Among the former is the elegant Court House, erected at a cost of \$60,000; the Modesto School House, the original cost of which was \$18,000; the Odd Fellows' Building, a handsome brick building on the corner of tenth and H streets, costing \$22,000; the Modesto Bank Building, also a handsome structure. Among the latter are the residences of many of the most prominent farmers of the county, who have taken up their abode here, with their families, to avail themselves of the educational advantages afforded.

The town now contains fifteen stores, five hotels, five warehouses, four restaurants, four boarding houses, four drug stores, six blacksmith and wheelright shops, four livery stables, thirteen saloons (exclusive of hotel bars), three paint establishments, two furniture and upholstery stores, two tin shops, one brick yard, three draymen, six laundries (a majority of which are Chinese), three butcher shops, two bakeries, two breweries, one photographic gallery, five millinery and dressmaking establishments, four barber shops, three variety stores, four boot and shoe establishments, two jewellers, four tailor shops, two harness shops, two undertakers, one soda factory, one barley mill, one coal yard, one lumber yard, a branch of E. M. Derby & Co., of Alameda, an Abstract Bureau, containing, when completed, a full abstract of all the lands in the county under the Durfey system. Mr. George Perley is the projector of this enterprise.

Three dairies, located near the town, afford the inhabitants a supply of first-class milk.

The various professions are well represented—the Gospel, Physic and the Law. The first by five stationed ministers, the second by six practising physicians, and the third by ten practising attorneys. The township has two Justices and two constables, who are located here. The Fire Department consists of a Hook and Ladder Company, composed of the "stalwarts" of the town. This organization has hitherto

proved a sufficient agency against fire, but Modesto will soon realize the necessity of the addition of an engine to her Fire Department. There is a scientific association, which has collected quite a number of volumes to its library; a "Literary Social," which meets once a month. All of these institutions are literary in their nature, and composed of many of the best citizens of the town. There are five churches—a Catholic, two Methodist, Christian and Baptist; one Grange of the Order of Patrons of Husbandry, one Masonic and one Odd Fellows Lodge, with Encampment, one Good Templars Lodge, one Order of United Workmen, one Grove of Ancient Order of Druids, one Post Grand Army of the Republic, one Batchelor's Union, three Sunday schools, two newspapers (both weeklies), the *Stanislaus Weekly News*, edited and published by J. D. Spencer, Representative elect of Stanislaus County, and the *Modesto Herald*, owned and published by Chas. H. Maxwell. The former is the Democratic organ of the county, and the latter the Republican. The town has an excellent supply of good, pure, fresh water, pumped daily and furnished at low rates by the Modesto Water Company; the rates are as low as \$1.50 per month for family use, additional charges being made for irrigating purposes. The town is illuminated with coal gas, and its many advantages are enjoyed by the inhabitants. The latter is furnished by the Modesto Gas Works at \$5 per thousand feet.

For these two commodities the town is indebted to the enterprise, the energy and indomitable perseverance of a young man by the name of Charles F. Leavenworth, a nephew of Dr. Leavenworth, of Sonoma.

The main streets of Modesto were graded by the Railroad Company three years ago, at the expense of \$3,000, rendering them high and dry. A system of drainage is needed for the town. It is now large enough to be incorporated, and many of the citizens are in favor of that project.

There are no factories, no wholesale establishments, no nurseries, no machine shops.

The warehouse capacity of Modesto is 15,000 tons. Between 450,000 and 500,000 bushels of wheat is handled here during a season.

The receipts of the railroad station average \$500 per day.

Considerable activity has been manifested recently in real estate. One hundred lots changed hands in one day at prices ranging between \$20 and \$40 per lot. The usual price of lots owned by the Railroad Company is \$75 and \$125 per lot. Lots can be had at from \$30 to \$125 on easy terms. Real estate is a good investment, both in town and country.

This is the nearest point on the railroad to the great Yosemite. Many go this way, and express themselves well pleased.

The Pioneer Coursing Club of San Francisco generally meet near here for their Autumn sport, and with hounds and hare the excitement runs high.

Turlock, another agricultural town, is situated in the southern part of the county, about 15 miles from Modesto, on the San Joaquin Valley road. It is situated in the centre of a large and fertile section. The town was laid out a few years ago by John W. Mitchell, the largest land-owner in the county. In the midst of his broad acres he here resides, displaying considerable executive ability in the management of his large estates, embracing in all over 100,000 acres. Mr. Mitchell owns the large warehouse at this place, having a capacity of 100,000 bushels. The town contains two hotels, one large store and two smaller variety stores, two blacksmith shops, several saloons, one tin shop, two livery stables, three warehouses, one boot and shoe establishment, one drug store, a public school, a Grange of Patrons of Husbandry, post and express office. It is making great progress and during the harvest season exhibits considerable life and activity. From 12,000 to 15,000 tons of wheat and considerable wool are shipped from here annually. A great deal of merchandise is sold at this point annually. Farmers in the neighborhood are prosperous, and are now busily engaged in preparing for the great harvest of 1880. Land can be had in this section at prices between \$5 and \$15 per acre, and on easy terms.

Oakdale—A thriving little agricultural town, is situated in the northern part of the county, near the banks of the Stanislaus River, and is the present terminus of the Stockton and Visalia Railroad. The objective terminus of this road was

Visalia, but it has reached no further than this point. The inhabitants of this lovely little town number about 300. The town derives its name from its beautiful situation among groves of innumerable oaks. It is a favorite resort for picnic excursions and pleasure parties from Stockton, Sacramento and nearer points. Considerable business is done here, it being the freighting point to many of the interior mining towns. This is a good location for health and general prosperity.

Knight's Ferry—Twelve miles directly northeast of Oakdale, in the extreme northeastern portion of the county, is situated the old mining town of Dentville (after Captain John Dent), commonly called and generally known as Knight's Ferry. It is beautifully laid out, on the banks of the Stanislaus River, and contains many cosy and handsome residences, nearly all of which are surrounded in profusion with the foliage of the tropics. Here oranges, lemons, the date palm, the cocoa and the citron obtain a luxuriant growth. Many orchards abound, and vineyards, weighed down in the proper season with the choicest of varieties, bedeck the surrounding hills. The celebrated Red Mountain Vineyard, of Scheil, Krause & Co., is located near this place. W. E. Stuart's orchard and vineyard, commanding a fine view from the prominence of its situation, adds to the many attractions of this little village. There is one large flouring mill, three stores, two hotels, a blacksmith shop and a livery stable, a brewery, three saloons, a public library and a Masonic and Odd Fellows' Lodge.

This town has become somewhat renowned as the rendezvous for a short while in 1853 of Captain U. S. Grant of the United States Army, who has since become so celebrated in the history of our country. Captain Grant paid a visit in that year to his relatives, the Dent family, who lived here in early times. Many of the old residents of the place remember him well.

It was the county seat of Stanislaus County from 1862 to 1871, when it was removed by a popular vote to Modesto. The first agricultural fair in the county was held at this place. The agricultural interests surrounding it are good. It has been generally considered a mining town, but these two indus-

tries are nearly equally divided. It has the best water power in the State, and needs only capital and enterprise to put it into use. This would be a most excellent location for the establishment of woolen mills or other manufacturing industries. A railroad is badly needed through that section of the country, leading on to Sonora and over the mountains. When such is effected, this town will at once revive and become one of the most important in the county.

La Grange—Commonly called in early days French Bar, is a little mining town situated in the eastern part of the county, near the Tuolumne, Mariposa and Merced County line. In early days it was a flourishing mining camp, considerable trade being centred here. It was the county seat of Stanislaus County for several years.

The town is still kept up by the mining interests around it. The La Grange Ditch and Hydraulic Mining Company organized in San Francisco, have been operating extensively in and around the town for several years.

M. A. Wheaton, of San Francisco, and others, have excellent water privileges on the Tuolumne River a few miles above the town. Gravel mining is carried on extensively in this region. A recent rich discovery in quartz was made a few miles from this place on the Olsen Ranch; it has passed into the hands of J. B. Haggin and other capitalists, who are busy at work in developing its resources.

La Grange has several stores, two hotels, three saloons, two blacksmith shops, one barber shop, a Catholic Church and many residences. The mining interests which have sustained this town in the past still promise it equal prosperity for the future.

Waterford—A small town situated on the Tuolumne River, about twelve miles east of Modesto, has two stores, one hotel, one saloon and several residences, a public school, a Grangers' hall, and is a purely agricultural town.

Hill's Ferry—Is in the southwestern part of the county, on the San Joaquin River and near the Merced County line. The town site is laid out on the old Mexican grant known as the "Orestimba Rancho." It was at one time considered the head of navigation on the San Joaquin, but steamers now venture

considerably further than this point. This town is maintained by the agricultural interests of the great "West Side," which district contains within its limits an area of the most fertile soil in California. The town has shown fresh signs of progress within the last few years. A new stimulus has been added by the great irrigating projects of Miller & Lux and others. Canals have been cut through the region of the country surrounding it, causing the brightest hopes and prospects for the future.

It contains two large stores, two hotels, two livery stables, five saloons, a brewery, an extensive lumber yard, two barber shops, a drug store, a Masonic Lodge, a blacksmith shop, two shoemaker shops, a carpenter shop, a silversmith, a public school and three warehouses. "Dutch Corners," an inseparable part of Hill's Ferry, and situate but a short distance from the town, is a lovely retreat kept by a lively Dutchman by the name of Earnest Voight. The choicest sports in the catalogue are indulged here in their proper season. Large quantities of grain and wool are shipped by steamer from this point. R. M. Wilson, an extensive farmer, owning over 5,000 acres of the fertile lands of the "Orestimba," has been making large expenditures recently in perfecting a system of irrigation for his large tract. He has made a success of the experiment, and now contemplates dividing his land into small farms, and selling off to bona fide settlers, on reasonable and easy terms. A noted day in the history of California will it be when her large land-owners consent to such a subdivision of their immense estates as will enable thousands of settlers to avail themselves of the opportunity of procuring homes for themselves and families at reasonable prices and on easy terms.

Greysonville — Another agricultural town of the "West Side," occupies a beautiful site on the banks of the San Joaquin, about twenty miles below Hill's Ferry, and fifteen miles from Modesto. It was settled at an early day, being built on a portion of the "Rancho El Pescadero." The same character of resources surround it that enable Hill's Ferry, Turlock, Oakdale and other agricultural towns in the county to maintain their prominence. J. W. Van Benschoten, Thomas A. Wilson, Mrs. R. B. Smith, J. D. Patterson, and

other large land owners, have their tracts near here. Vast herds of cattle and flocks of sheep are kept in the coast range of mountains, a few miles distant. The town contains one hotel, one store, one large warehouse, one livery stable, one restaurant, five saloons, and other business houses, a post and express office, a public school, Grangers' Order and hall, and many private residences. This is the official headquarters of the "West Side Irrigation Commissioners." A stage line affords communication between here and Hill's Ferry and Bantas.

Ceres—A small town situated on the railroad between Modesto and Turlock, was laid out in 1874, by R. R. Whitmore, who owns a large tract of land in the neighborhood, and the large warehouse in which is stored immense quantities of grain from the surrounding country. There is a store here and a blacksmith shop, and a resident minister, also a public school.

Salida—Another small railroad town, is situated near the Stanislaus River, between Modesto and Lathrop, on the vast domain of John Murphy, another one of the large farmers of the county. There are two large warehouses here, a post office, restaurant and blacksmith shop.

This completes the number of live towns in Stanislaus County. There are several *dead* ones, which flourished in the past, but whose names have now passed into the history of the county as "what was, but are no more." They may revive in the progress of events, and the future historian of the county may be compelled to write the names of "Paradise," "Tuolumne City," "West Port," "Empire City" and "Adamsville," but we are obliged to leave them for the present with the dead.

EDUCATION.

The educational facilities offered by this county are most excellent, as evinced by the number of school districts into which it is divided, the liberal salaries paid to teachers, and the number of school months in the year. There are forty-eight school districts; the highest salary paid is \$125; the average salary to male teachers is \$80, and to female teachers is \$70; and the average number of months taught is eight.

There are seven teachers having life diplomas, fifteen holding State diplomas, and twenty-seven male teachers in the county. The State apportionment for the thirteenth fiscal year, ending June 30, 1879, amounted to \$11,739.42. This is distributed to the different school districts in the county. The total amount paid the State for school purposes from interest on State school land and from property tax for the year ending February 18, 1879, is as follows: Interest on school lands, \$1,490.78; property tax, \$12,331.96. Total amount, \$13,822.74. The Teachers' Institute, which meets annually, is always well attended, and a lively interest seems to be taken in educational matters. W. H. Robinson, the efficient superintendent of Public Instruction, deserves great credit for his management of the public schools.

PIONEERS.

Stanislaus, like all other counties in the State, contains many old pioneers. To be a '49er, or a son of one, is as proud a title of nobility as any American could wish. There is no organization of pioneers in the county, unless they consider themselves always organized. Those who once occupied prominent positions, and whose names are identified in the county's history, are Hon. Robert McGarvey, now of Ukiah, Mendocino County, who was the first County Clerk and afterwards County Judge; S. P. Scaniker, now of Carson City, Nevada, who was the first District Attorney. William Holden, afterwards Lieutenant-Governor under Haight, was the first Representative. P. B. Nagle, attorney-at-law, now of San Francisco, was District Attorney of this county in 1862 and a pioneer of the county. Hon. J. W. Robertson, now County Judge of Merced County, came here when a boy, and was one of our Representatives to the Legislature. A. B. Anderson, now of Bodie, was an early settler in the county and elected County Clerk in 1861. Halleck, Peachy, Billings and Stone and General W. T. Sherman had early interests here in a Mexican grant. Hon. Charles M. Creaner, now of San Joaquin, was District Judge in 1854, and many others who have passed away.

MERCED COUNTY.

*Its Location, Soil, Principal Products, Climate, Resources,
Etc., Etc.*

[Written for THE WEEKLY CALL of January 30th, 1879, by ROBT. J. STEEL, editor and proprietor of the San Joaquin Valley Argus.]

Merced County is situated in the heart of the great San Joaquin Valley, embracing a territory extending from the foothills of the Sierra Nevada range of mountains on the east, to the summit of the Central or Coast Range on the west. It is bounded on the north by Stanislaus County, east by Mariposa, south by Fresno, and west by Stanislaus, Santa Clara, and San Benito Counties. Its greatest length easterly and westerly is about ninety miles, and its average width is about forty miles. With the exception of that portion lying upon the eastern slope of the Coast Range, a strip not exceeding twelve miles in width, the land is generally level prairie, with occasional lines of timber skirting the various streams running through it.

THE CLIMATE IS MILD AND EQUABLE,

ice and frost being rare even in the coldest Winters, and the heat in the Summer never being excessive—rarely too hot for men to work throughout the day in the open harvest fields without inconvenience or suffering from heat—the seasons being most properly denominated “wet or rainy” and “dry season,” instead of Winter and Summer. The grass and herbage shoot forth with the fall of the first rains—generally in November—and continue green and growing until maturity or the dry season sets in—generally in May or June—when the wild grasses become dry, affording nutritious feed for stock until the next rainy season comes on and green feed springs forth again.

THE SOIL

is generally rich and produces heavy crops of wheat and other cereals, without irrigation, save in exceptionally dry seasons, when there is almost a total lack of rainfall during the Winter months. With the exception of the sandy district extending from the Stanislaus County line, on the east side of the San

Joaquin River, south to within a few miles of the county seat, Merced, the soil is heavy—some districts being black adobe, and others being yellow clay or mulatto soils easily cultivated after once being broken by the plough. The sandy and other light soil sections are easily cultivated and produce remunerative crops of small grain.

THE PRINCIPAL PRODUCTS

are wheat, rye, barley, Indian corn, sheep, cattle, horses, mules, hogs, goats, cotton, vegetables, wine, distilled liquors, poultry, and almost every variety of fruits—the orange, lime, lemon, and many other varieties of tropical and semi-tropical fruits, growing to perfection and paying well for the labor bestowed upon their cultivation.

THE PRINCIPAL TOWNS

are Merced, the county seat, 140 miles from San Francisco, Plainsburg, Snelling, Hopeton, Merced Falls, Livingstone, Los Baños and Central Point. The town of Merced, situated on the line of the Southern Pacific Railroad, contains a population of about 2,000. Has five churches, seven hotels, six livery stables, one planing mill, two large lumber yards, two large warehouses, each capable of storing 12,000 tons of grain, one district school building, capable of accommodating 600 pupils, and the largest and finest court house and jail in the San Joaquin Valley. There are three dry goods stores, two drug stores, three tin and hardware stores, two book and stationery stores, one large watch and jewelry store, one iron foundry, five blacksmith shops, four wheelwright shops, three butcher-shops, two printing offices publishing papers, fourteen saloons and seven general merchandise stores, two milliner and two merchant tailor establishments; one large furniture store and an undertaker's shop, and one brewery. The other towns are small, containing from one to three stores each, besides hotels, stables, shops, etc., requisite to supply the wants of the country surrounding each. The county, being thinly settled by people whose principal avocation is agricultural and pastoral pursuits does not furnish the requisite material for the building up of large towns.

MANUFACTURING ESTABLISHMENTS.

At Merced Falls is situated the Merced Woolen Mills, and the flouring mills of William Nelson & Son. The former turns out large quantities of blankets, flannels, linseys, cassimeres, broadcloths and other woolen goods; and the latter runs on full time, having a capacity of about fifty barrels of flour per day. The other mills of the county are Murry's flouring mill, two miles below Merced Falls, and the Merced Mills at Snel-ling, each with a capacity of about fifty barrels of flour per day, all run by water power.

WATERCOURSES.

The San Joaquin and Merced River and the Chowchilla, Deadman's, Mariposa, and Bear Creeks, and their tributaries, flow through the county from the Sierra Nevadas; and the Los Baños, San Luis, Cottonwood, Sycamore and numerous others, flow into the San Joaquin from the Coast Range on the west side of the valley. The San Joaquin and Merced Rivers and Salt Slough, a tributary of the San Joaquin, are navigable, affording means of transporting the crops of the west side and the country contiguous on the east side, steamers plying between Stockton and the Upper San Joaquin River landings generally from December to August, about which time the season closes by reason of low water.

CANALS AND IRRIGATING DITCHES.

The San Joaquin and King's River Canal extends from Firebaugh's Ferry, in Fresno County, along the base of the Coast Range to Orestimba Creek, in Stanislaus County, a distance of nearly seventy miles, nearly sixty miles of the line of which is in Merced County, affording irrigating facilities to a large scope of country west of the San Joaquin River. This canal has been in operation as far down as Los Baños since the Spring of 1873, and in 1878 was extended to Orestimba Creek, a distance of thirty miles down the valley. Its source of supply at present is the San Joaquin, and when an immense supply of water is required the company will tap Lower King's River, which has been ascertained to be available at a compar-

atively small expense. On the east side of the San Joaquin River is the

FARMERS' CANAL,

which taps the Merced River on the south side at a point about four miles above the town of Snelling, and is now available for irrigation upon the district of country west of the road leading from Merced to Snelling, lying between Bear Creek and the Merced River as far west as the San Joaquin, embracing Livingstone (Cressey's Station) and the Merced colony, some 25,000 or 30,000 acres of which will be irrigated this year. This canal has just been completed through the ridge dividing the Merced River from Dry Creek (Canal Creek), by which the water is conveyed through the tunnel into the latter, whence it is conveyed down the channel of Dry, or Canal Creek, to a point about eight miles east of Livingstone, where it is being taken out in distributing ditches and conveyed upon the lands in the district above mentioned. It is the calculation of the bondholders along the line of ditch thus far completed to irrigate this season about 25,000 acres, which will be cultivated principally in wheat, the ground being sandy and peculiarly suited to irrigation. In addition to the above canals, there are numerous local ditches owned and used by farmers along the Merced River, from Merced Falls to the ranches of Dr. Griffith and Mrs. Borfield, a distance of sixteen or eighteen miles, supplying water for irrigating many thousand acres of rich bottom land.

TRANSPORTATION FACILITIES.

In addition to the facilities afforded for the shipment of products by means of steamboats, spoken of elsewhere in this article, the great Southern Pacific Railroad traverses the country in a northwesterly and southeasterly direction a distance of nearly forty miles, about midway between the San Joaquin River and the foothills of the Sierra Nevada Range, affording cheap, convenient and rapid transportation for the products of all that portion of the county lying east of the San Joaquin, at the same time making Merced, Plainsburg, and other stations along the line, shipping points for the rich mineral regions

of Mariposa, lying farther to the eastward, in which large quantities of gold are being extracted, the machinery for working the mines of which is hauled upon wagons from Merced to the mines and mills in the mountains.

ARTESIAN OR FLOWING WELLS.

By no means an insignificant industry in Merced County is that of sinking artesian wells, the flowing water being obtained at from 125 to 300 feet, and supplies being obtained for irrigation and stock purposes in some of the driest parts of the county, literally turning what was hitherto deserts into thrifty garden spots. No reliable data is at hand by which the number of flowing artesian wells can be ascertained, though the number now in the county certainly exceeds one hundred, each of which will irrigate from twenty-five to forty acres of land; and, as there are a number of companies engaged in boring wells for the land-holders, the number of wells continue to increase, weekly. The source of supply for these wells appears to be inexhaustible, the flow of water from the oldest wells increasing instead of diminishing, and none of them weakening because of other wells being sunk in close proximity to them, as many predicted would be the case. Among the water resources of the county it may not be improper to remark that almost everywhere in the valley good water, in inexhaustible quantities, can be obtained by boring from four to six-inch holes to a depth of from fifteen to forty feet, the water rising in them in most instances within from eight to ten feet of the surface, and furnishing a sufficient stream to keep an ordinary pump running, propelled by windmill or horse-power, even in the driest seasons. In the past few years it has not been an uncommon thing for large ranchos, with their thousands of sheep, horses, cattle and other live stock to be supplied entirely with water from two or three of these shallow-bored wells, the pumps being run by horse or windmill power, according to circumstances.

VALUE OF LANDS.

Lands in large tracts may be purchased at from \$2.50 to \$15 per acre, according to quality, situation, etc., but small farms

are held higher in proportion, being generally better improved. Unimproved lands, however, of good quality, in small quantities, can be bought at prices ranging from \$4 to \$10 per acre. Of course, lands lying contiguous to towns, railroad stations, steamer landings and upon public thoroughfares are held at higher figures, even though unimproved.

ORANGE CULTURE.

The developments of the past few years have proved conclusively that the soil and climate of Merced County are well adapted to the production of the orange and various other tropical and semi-tropical fruits. In Merced, during the Christmas holidays, ripe oranges were to be seen hanging upon the trees in many of the gardens, and in two or three years more of this luscious fruit, grown at home, will be as plentiful in its season as are peaches, apples, or any of the common fruits of the country in their seasons. The cultivation of oranges and like fruits in future years is destined to become an important industry in Merced County, and in three or four seasons more of this line of fruits will be shipped hence in quantities to other parts of the State to find a market. The first experiments in the production of oranges in the county were made by amateurs, but in the last four or five years many orchardists and farmers have given it their attention to such an extent that it has developed into a business which is destined to prove exceedingly profitable.

FRESNO COUNTY.

[Written for the RESOURCES OF CALIFORNIA by DANA C. PEARSON.]

FRESNO CITY, Feb. 8, 1880.

Fresno county is about 150 miles long, northeast and southwest, extending from the summit of the Sierras to the summit of the Coast Range, thus crossing the great San Joaquin Valley with a width of about sixty-five miles. The railroad crosses the central valley portion of it. The area must be near

10,000 square miles. From the foot-hills of the Sierras to those of the Coast Range it is, say sixty to sixty-five miles, making the valley portion of this county about square, with an area of nearly or quite 4,000 square miles of rich land, nearly all of which can be irrigated. This county was first devoted to cattle raising, then to sheep, and now is rapidly becoming an agricultural county. There is now over 500,000 sheep in the county. These lands are very productive, and can be bought at from—first-class lands, \$20 and upwards; second and third-class, \$5 to \$10 per acre. The population of the county is about 7,000.

FRESNO CITY.

This, new, pretty county seat of Fresno County is fifty-five miles from Merced on the line of the Visalia Division of the Central Pacific Railroad. It is quite centrally located in the county, especially the agricultural section, and occupies a central position in this great valley. This is another of California's pretty, new, railroad towns. This prosperous, thriving town dates back only about five years, and when located here, in this sandy plain there was not a building near the site, yet it now contains 1,500 people. We have called this a sandy plain, so it is, yet it is of a dark alluvial nature and exceedingly rich, producing everything in great abundance, with plenty of water. This location being right between the San Joaquin and King's rivers, and all the land being susceptible of irrigation, it is a place of great promise. Millerton, an old mining town just in the foot-hills of the Sierras, was the county seat till a few years ago. Since it has removed here this town has improved rapidly. Another of California's nice court-houses has been erected here, a beautiful structure resembling the one at Merced only not quite as costly. A splendid \$10,000 public school building has been just completed. It is a credit to the city. Fresno now has 260 dwelling houses, and when we were there, there were several buildings in course of construction. The following given to us by the agent at the railroad depot will indicate something of the business of this station: Amount received in November for sales of tickets, \$1,529.95; amount

received for freight, \$5,000.00 ; average monthly cash receipts \$5,500.

The very heavy mercantile house of Kutner & Goldstein sell \$120,000 annually. They have a warehouse of 1,000 tons capacity. They have shipped in one year 1,650 tons of wheat. This enterprising firm erected a large brick store. They deal in grain, feed and farm produce, and their stock of general merchandise consists of every variety of goods in demand by the settlers. This good and reliable firm does a banking business.

There are two newspapers published here, the *Expositor* and *Republican*. Here is a good public school with three efficient teachers on salaries of \$100 and \$75 per month. A pretty, new Methodist Episcopal Church has been erected. The Morrow House is not only a credit to the town, but especially to the proprietor, well kept, and stands in a very nice healthy location.

SOILS, CROPS AND PRODUCTIONS.

The soil, generally, is a rich sandy loam, and much of it as good as any in the State. There is water enough in the great rivers, the lesser ones and the small streams, to irrigate almost every acre of this valley, nearly 400 miles long and thirty to fifty miles wide, embracing more than 10,000,000 acres of land, large enough to sustain millions of people if properly utilized.

Cattle, horses, sheep and hogs were formerly the chief productions ; but now wheat, corn, oats, barley, potatoes and alfalfa are the principal products, and are grown in many places without irrigation—garden vegetables generally require irrigation. Grapes grow to perfection, and one acre of good vines will yield from \$100 to \$200 per annum. Oranges, lemons, figs, limes and pomegranates thrive here by the side of the apple, peach, pear, quince, etc., of the temperate zone ; these latter reach great perfection. The culture of the cotton has proven a great success in all this valley, yielding as high as 400 pounds and averaging half a bale to the acre, but the cost of raising, at present, almost precludes a financial success in its production. Tobacco, hops and the castor bean grow well and may be a success.

TIMBER AND MINERALS.

Timber is plenty in the mountains, yet there are only seven saw-mills in the county. Good mines exist here, and granite, slate, marble, serpentine, lime, coal, lead and petroleum are found. We could say much more of some of the mines than we have if we had space. There are few manufacturing interests in the county, but excellent opportunities for this industry in almost everything that can be made in the State.

THE AUTUMN

compares to the Eastern Indian summer, and the winter is an Atlantic coast spring, with few exceptions. The thermometer in winter averages at about 50 degrees in the nights, but the days are much warmer. Any crops can be raised here that can be raised in the Middle, Eastern or Southern States, from tobacco and peanuts to coffee and figs, and as for grapes (for wine or raisins) is hard to be excelled. Egyptian corn grows very luxuriantly. Millet and sorghum may be cut perpetually from three to five times from one planting, and twice for expressing the juice. The sweet potatoes are successfully raised. Beans, peas, onions, beets, radishes, carrots, parsnips and tomatoes are also successfully raised. The red and white clover, timothy and lawn grass will grow, but we have something which so far outdoes them that they are scarcely thought of. We refer to a sort of clover called alfalfa, which we sow in February and are able to cut the first year about three times, and get from one to one and a-half tons per acre each cutting, and may, when two or three years old, get two tons and upward and cut five or six times a year, the rule being every six weeks. The market price depends on the season, but ranges from \$5 to \$10. As for shrubs, we believe anything can be successfully grown here that can be grown in Florida.

BUSINESS HOUSES.

We took the following enumeration of the business interests of Fresno: Four hotels and one restaurant, four stores of general merchandise, two drug stores, two variety stores, one clothing store, one millinery store, one tin and stove store, one

grocery store, one jeweler, three livery stables, three blacksmith and wagon shops, two shoemakers, one cabinet-maker, two barbers, one paint shop and two painters, one bakery, three carpenter shops, one dentist, one wind-mill factory, two physicians, thirteen attorneys, one dress-maker, two meat markets, one grist-mill, one lumber yard, two papers, water works, a county hospital, lodge of Odd Fellows, lodge of Good Templars, a literary society, and a library. Fresno is a pretty, pleasant and growing place.

There is a great system of irrigating ditches in this vicinity—and the mines in the mountains, together with the splendid and eligible location of this town bespeaks for it a great future.

COLONIES.

Besides there are six colonies planted and being planted within from three to six miles of this town which will contribute to its growth and prosperity. Several parties have purchased lands from the railroad company at rates of at least one-tenth of what they hold them at at present. The railroad company have immense tracts for sale in this county, susceptible of a high order of cultivation.

THE CENTRAL CALIFORNIA COLONY

is only three miles from Fresno. We visited this interesting colony of fifty or sixty families located on this level rich tract, making themselves nice homes, having a school and good society and are destined to become an independent people. This settlement was commenced only a few years ago, and the growth of trees and shrubs is astonishing, especially alfalfa. The originators and managers of these lands have inaugurated a perfect network of ditches for the colonists and now they have water in abundance, the water right being procured in the purchase of the lands. The lots are twenty acres—sold on the instalment plan, twenty per cent. down and five years to pay the balance. The grapes produced here are claimed to be the best in the State. One lady put up a ton of raisins, excelling in the San Francisco markets.

THE WASHINGTON COLONY

is five miles from Fresno and consists of 7,000 acres of this

rich land and has now twenty-five or thirty families. Its lots are ten and twenty acres, with a town centrally located a one-half mile square. They have a school and are raising grapes, other fruits and alfalfa. The ten acre lots sell for \$400 to \$500, and the twenty acre lots from \$500 to \$700, on the instalment plan.

TULARE COUNTY.

[Written expressly for the WEEKLY CALL of Feb. 13th, 1879, by WILL H. VISCHER, editor of the TULARE TIMES.]

Tulare County is situated in the heart of the great San Joaquin Valley of California, a little south of the centre of the State. It is bounded on the north by Fresno County, on the south by Kern, east by Inyo and west by Fresno and Monterey, Monterey being the only county between Tulare and the Pacific Ocean. Tulare County contains 5,500 square miles of land, of which about 75,000 acres are under cultivation. The population is 22,000. About one-fifth of the county is mountainous, the Sierra Nevada Mountains being its eastern border. Tulare Lake, in the southwestern part of the county, is sixty miles long and thirty miles in width, at its widest place, and is shaped something like a pear. The remainder of the county is a fertile plain, and in those parts where a fair system of irrigation has been organized the crops are unfailing and are prolific to a remarkable degree. Wheat, barley, corn, potatoes and hay are the chief agricultural products, and of these immense quantities are annually harvested and shipped, even from the comparatively small acreage now tilled. The shipments of wheat last season were about 18,000,000 pounds, and of barley, about 5,000,000 pounds. Wool is grown very extensively, nearly 3,000,000 pounds being the annual product. Cattle and hogs are also extensively raised. The fruit product comprises all the semi-tropical fruits, with many of the varieties which pertain to the more temperate or tropical climates. The fig, lemon, lime, orange, pomegranate and grape flourish and yield abundantly. The pear and apple grow as large and plentiful as anywhere on the earth. Peaches do tolerably well, while all kinds of melons and gar-

den vegetables grow in great strength and perfection. Flowers are wonderfully numerous and beautiful, and grow spontaneously. Alfalfa grows quickly and luxuriantly, and four crops a year may be harvested. The climate is of the most delightful character, except about three months in Summer, when the weather, for the most part, is uncomfortably warm, and yet not warmer than in the Gulf States. The mean temperature is fifty-five to eighty degrees. The mountain resorts, only forty or fifty miles from the centre of the county, afford during the Summer, delightful escapes from the heat, as well as most pleasing recreation. Land in Tulare County is cheap, the average assessed value being about \$2 per acre, and in the foothills, the pleasantest part of the county, the year round, there are thousands of acres of rich soil waiting for the sower and the reaper.

The gold and silver mines of the county are beginning to attract much attention, especially those of the Mineral King District, in the northeastern part of the county. Within the last six months immense deposits of rich silver-bearing ore have been discovered, and it is expected that when the weather opens in the mountains, large mining enterprises will be set on foot in that region. Indeed, mining operations have already begun on an extensive scale in the district, and arrangements have been made for the shipment of stamp mills early in the Spring. The people of Tulare have full faith that the development of these mines will be of exceeding advantage to the county in increasing its business within the present year. Gold mines on White and Tule rivers, in this county, are also being developed to the great satisfaction of their owners and all interested parties.

Tulare County contains a grove of big trees, which far surpasses in size those of other more celebrated groves in the State. More celebrated because easier of access, and because they have been, therefore, more frequently visited. This grove is on King's River, near Wagys' mills.

There are several live and growing towns in this county which are destined to be important places of traffic, as each one of them is surrounded by a fair agricultural region, and many of them have good railroad advantages.

Visalia, the county seat, is a thriving place of about 3,000 inhabitants, situated near the centre of the county, in an exceedingly fertile region, and is the terminus of a branch railroad which connects with the Central Pacific Railroad at Goshen, seven miles west. The branch road during the first eleven months of the year 1878 transported from Visalia the total number of pounds of each product mentioned as follows: Hogs, 2,800,000; cattle, 1,600,000; flour, 599,500; wood, 1,620,000; potatoes, 60,000; sheep, 620,000; brick, 21,600; wool, 360,000; lime, 40,000; mules, 24,000; lumber 66,480; wheat, 3,813,500; barley, 978,600; merchandise, 998,843. The receipts at Visalia, in pounds, during the same time, by the same road, were as follows: Wheat, 914,598; coal oil, 63,075; salt, 60,215; lumber, 226,650; machinery, 129,050; ice, 291,950; merchandise, 3,014,971.

Visalia has a stable bank, two weekly newspapers—the *Delta* and *Times*—a flouring mill of the capacity of 100 barrels per day, water works, an efficient fire company with hand engine, Lodges of Free Masons, Odd Fellows and Good Templars, a Lyceum for literary, musical and dramatic culture and developement, six churches, a large and well conducted public school, with several private schools and a Normal Academy. The town has many handsome public and private buildings, among them a Court House which was erected at a cost of \$75,000. The people possess more than the average of cultivation for California towns, and are correspondingly public-minded and enterprising, and the place is growing rapidly.

Tulare City is situated on the Southern Pacific Railroad, is twelve miles south of Visalia; has a population of about 900, and is the seat of the Southern Pacific Railroad shops for this division. It is also surrounded by a fine agricultural district. Hanford and Lemoore are small towns on another branch railroad running west from Goshen to Huron, through that part of Tulare County known as the Mussel Slough District. Hanford is about twelve miles from Goshen, and Lemoore seven miles further on. Both are important depots for the shipment of agricultural products. Porterville, Farmersville and Plano are hamlets east of Visalia, containing a few stores each, and the necessary adjuncts of

country villages. Tulare County has numerous sawmills, but not near enough to make any impression upon the vast forests of pine and redwood which the county contains. The Southern Pacific Railroad traverses the county from north to south, running across it in such a manner as to split it in two equal parts; this and the two branch roads mentioned which run east and west from near the centre of the county are the extent of its present railroad facilities; good wagon roads are numerous, however. Nearly one-half of the county has a perfect and unfailing system of irrigation, where short crops have been unknown since the irrigating arrangements have been made. From any part of the county, a long range of the Sierras, with snow-capped peaks, are visible, and in the verdant season of the year the plains are covered with a luxuriant growth of nutritious grass, which lasts all winter; and in the spring-time wild flowers in endless variety, and of the most beautiful hues, lend great beauty to every landscape. In short, Tulare County is altogether a desirable country to live in. Its resources are great; its climate, for the most part, delightful, its products are of the best, its people hospitable and magnanimous, its scenery beautiful, its plains fertile, its mountains rich in timber, stone and precious metals. Delicious fruits, game and fish are abundant, and with the coming years, and the large increase of population they will bring, the prospects for its future are, to say the least, flattering.

KERN COUNTY.

[Written for the WEEKLY CALL, of April 24, 1879.]

Kern is one of the largest counties in the State, and was formed in 1866 from a portion of Tulare on the north, and a part of Los Angeles County on the south. A large portion of this county is adapted to agriculture, and the remainder to stock-raising and mining. The irrigating facilities are probably superior to any in the State, Kern river furnishing a never failing supply of water, which is well distributed through the valley, and even in the driest season there are no fears to be entertained.

KERN VALLEY,

through which the river flows, is a large and excellent body of agricultural land. Here all kinds of grain is grown, and a great deal of attention is paid to the cultivation of alfalfa, one of the most profitable crops that can be planted. From four to eight tons of alfalfa hay per year is cut from the acre, and is readily sold at from six to twelve dollars per ton. Alfalfa is one of the greatest forage plants known. All kinds of stock and poultry feed on it, and bees are fond of the blossom. One acre of alfalfa will support during the summer three cows, or twelve sheep. In the Eastern States about three acres of pasturage are required for pasturing one cow, but where alfalfa is grown, as in Kern, nine head of cows can be supported on the same amount of land. Alfalfa gives no trouble after planting, needs very little water, and never dies out.

Wheat and barley are grown extensively in the valley, and fifty bushels of grain to the acre is about an average. Corn, potatoes, etc., are also profitable crops. The valley has made a reputation for products such as alfalfa, corn, wheat, barley, hops, apples, pears, peaches, grapes, figs, etc. Sweet potatoes grow to the largest size here. Dr. Stockton, who has a farm a few miles south of Bakersfield, often has specimens weighing fifteen pounds, and only a short time ago he had three weighing, respectively, twenty, twenty-two, and twenty-two and a half pounds. In one instance, 140 bushels of corn to the acre is said to have been produced.

Experiments in artesian wells have proved very successful, as quite a number of them go to show.

LARGE FARMS.

The largest farm in the valley is owned by Haggin & Carr, and the next in size is that of H. P. Livermore, of San Francisco. The Haggin & Carr property covers a large extent of country, and is highly improved and thoroughly cultivated. The

LIVERMORE FARM

was commenced about four years ago, and contains about 7,200 acres of land, well fenced, and under a complete system of

irrigation. It has about thirty-five miles of fencing, and about 100 miles of irrigating ditches. Two thousand five hundred acres are planted in alfalfa, fifty acres in orchard, about two thousand acres are annually sown in grain, and the balance in miscellaneous grain. There are two artesian wells on this farm.

The semi-tropical fruits, including the orange, lemon, lime, banana, etc., have been tested here, and with the most satisfactory results, though the unprecedented cold of the present Winter has materially damaged the young trees.

Some Portuguese farmers who came into this valley last Spring have made an excellent showing. Most of them commenced with little or no capital, renting land from Haggin & Carr, who furnished them with teams and feed. One of these men raised 3,400 sacks of grain, besides a large crop of corn and beans. He accomplished all by his own unaided exertions.

CULTIVATION.

Every crop has its season. If planted the right time and properly cared for a full yield may be expected, not otherwise. The warm season is so long here that all ordinary crops mature planted over a space of several months. As one illustration, Indian corn is usually planted on ground from which a crop of barley or wheat has just been removed, but the average yield is not more than sixty bushels to the acre. If planted in season, about the first of April, twice that may be looked for. Poor results follow the too prevalent practice of regulating the time of planting by the possibility of the ripening before the rainy season commences. The best part of the growing season is the early part. The sowings of wheat and barley should be complete by the first of December. No more irrigation will be required, and the yield will not be far from sixty bushels to the acre, more or less. Wheat is a profitable crop, and the grower is given special rates of transportation over the railroad to San Francisco. The best crop of barley raised last year was sown in November, fifteen pounds of seed used to the acre, and not irrigated either before or after sowing.

COLONIZATION.

Steps have been taken to colonize a tract of land south of Bakersfield, and special inducements are offered to immigrants. The lands offered are as good as the valley boasts. Pamphlets have been published, and any person desirous of learning of the proposed colony, can get information by addressing C. Brower, Bakersfield.

THE MINING INTERESTS

throughout the mining regions are in a flourishing condition, and some fine mines are paying handsomely. Kern County has some excellent quartz-bearing mines, the most valuable of which are located at Kernville, and the Summer mine at that place has a large mill, one of the most costly in the State. Hon. J. P. Jones, of Nevada, owns some claims at Havilah, which are said to be valuable, but little or no work is being done by him at present. A few placer mines are being worked in different portions of the county, and some parties are making money on placer mines. The most important towns of the county are Bakersfield, Kernville, Tehachapi, Sumner and Havilah.

BAKERSFIELD,

the county seat, has a population of about 1,500, and is situated in Kern Valley, on the line of the S. P. R. R., and is about one mile from Kern River. There are in Bakersfield a beautiful Court House, which was built about two years ago, at a cost of about \$40,000, and a school house, which was completed during the last year at a cost of about \$10,000. There are two newspapers here, the *Courier-Californian* and the *Gazette*. There is talk of a narrow guage railroad or a navigable canal being built from Bakersfield to tide water, which would be a great convenience and assistance to the people who have produce to ship and freight to bring in.

The following extracts, taken from the *Courier-Californian*, will be of interest :

THE LUMBER INTERESTS

of Kern County are not to be overlooked in this brief review of her resources. The immense sugar pine forests of the Green-

horn Mountains and other spurs of the Sierra are of vast importance, and the question of cheap and adequate transportation from the pinery to the valley is now engaging the thoughtful attention of capitalists. The construction of a flume down Kern River is a project that has long been contemplated, and seems to be not only practicable but easy, and certainly the inducements of pecuniary advantages to be derived from such an enterprise appear almost irresistible. Rough lumber, per rail, delivered at Bakersfield depot, costs \$25 per M, while it is probable that the superior sugar pine could be flumed down for \$18 to \$20 per M, and a princely profit realized at that. There are two mills now running on the Greenhorn Mountain, supplying Kernville and the mountain settlements generally with lumber. These mills furnish nearly all the lumber for the Darwin mines, in Inyo County, nearly a hundred miles east. Another, on the other side, supplies Linn's Valley, and a fourth, in the San Emidio Mountains, furnishes the southern part of the county with lumber.

IMMIGRATION.

A table compiled and published a short time since, contains some interesting facts in connection with the immigration to this State during the past five years. By that table it appears that the ratio of increase in population has been greater in the San Joaquin Valley than in any other portion of the State, and that of the four southern counties through which the valley extends, namely, Merced, Fresno, Tulare and Kern, by far the largest percentage of increase is apparent in Kern County. The increase for the half decade ending now is represented as follows : Merced, 133; Fresno, 78; Tulare, 107 ; and Kern, 151 per cent. Aside from these, the two coast counties, Santa Barbara and Los Angeles, show gains respectively of 110 and 90 per cent. The remaining southern counties constituting the Fourth Congressional District, show an increase ranging from 5 to 49 per cent. The tide of immigration has been steadily pouring into Santa Barbara and Los Angeles Counties during the whole of that time, but has been on a diminished rather than an augmented scale for the last two years, while it is only during the latter period that it has ever reached Kern

County at all. Virtually, then, the increase in Kern County for the last two years has been at the annual rate of 75 per cent. Remarkable as this is, we confidently expect to see it surpassed in the succeeding years. It took a long time to find us out, and it took much hardship, expense, and time, to reach us afterward, till the railroad came and opened the gates of the valley. The coast counties were easily reached by sea, but Kern County, locked in the interior, was the "ultima thule," rarely heard of and never sought. But the blockade is raised, and the Kern Valley is the great reservoir into which may roll the tide of population for years, and still there will be room. Ten thousand farms wait but for the hand of intelligent industry to blossom into as many charming homes. From the far and frozen North, from the depleted and fed-out East, from the devastated South, and from the locust-stricken plains of the West, they come to share our blessings and assist us in developing the richest of the inland empire which we call Kern County. And they will continue to come as long as we can sell them lands for \$25 to \$30 per acre superior in every point of view to those for which they must pay four times as much in the coast counties.

A SETTLER'S EXPERIENCE.

Three years ago, Dr. J. Stockton, an intelligent agriculturist, came to the valley, after losing \$12,000 in farming in Sonoma County on account of drouth, and located on a piece of Government land near Kern Lake. But though bankrupt in purse he still had a large balance in his favor in energy and industry. He soon established himself and made a home for his large family, and is now the possessor of three-quarters of section 30, township 27 south, range 21 east, as may be seen by consulting the map. He has some land in alfalfa which yields eight to nine tons of hay during the season besides pasturage. Wheat and barley gave him an average of forty bushels to the acre; sweet potatoes yield ten to fifteen tons to the acre. Some of these potatoes grow to prodigious size. A few specimens were brought to town a few days ago, and may be seen at this office. There are six of them, and they resemble in appearance pumpkins more than anything else. The smallest weighs eighteen

pounds, and largest twenty-two and a half pounds. These are not yams, but thoroughbred sweet potatoes of the Ocean Queen variety. A manufactory for the purpose of making sugar from the sweet potato has been seriously contemplated, and there is no doubt it would prove a profitable investment. For fattening hogs also there is nothing that can excel the sweet potato. The doctor is full of resources, and this year himself possessed of an enormous quantity of watermelons, he determined to reduce them to syrup. It took eight gallons of melon juice to make one gallon of syrup. He has made this year one hundred and twenty-five gallons of excellent syrup. He regards this the best place to be found anywhere for raising poultry of all kinds. Fowls are free from the assaults of animals, and are not liable to diseases.

TEMPERATURE AND CLIMATE.

A reference to the geographical position of Kern County will indicate at once to the thoughtful the general character of the climate. The temperature of the valley in Winter rarely reaches the freezing point; in summer the mercury not unfrequently marks a hundred degrees. It is universally remarked, however, especially by those recently from the Eastern States, that the heat does not appear to be nearly so great here at a hundred as it does there at eighty-five degrees. This is susceptible of easy explanation. One reason lies in the vast amount of evaporation that is constantly going on here, and another in the fact that a never-failing breeze prevails throughout the Summer. This breeze travels all the way up the valley from the sea, and, no doubt, the great body of water lying partly within our northern boundary, called Tulare Lake, and over which it directly passes, has much to do in equalizing its temperature by the time it reaches the lower and more central parts of the valley. Reference is here had especially to the valley of Kern River as constituting the most flourishing and populous portion of the county. The nights, from the causes already cited, are deliciously cool and pleasant; no matter how great the heat of the day has been, it will always be found comfortable to sleep under one pair of blankets. In the foothills, at a slight elevation above the plains, there is what is

known as the warm belt. Here the air is warm and dry to a remarkable degree, and such is the purity of the atmosphere that fresh meat upon exposure will dry up but will not putrefy. Being perfectly screened by the Coast Range from the sea fogs that prevail along our sister coast counties and also from harsh winds, the climate of Kern County is justly regarded as one of the finest in the world, especially for persons suffering from pulmonary and kindred affections. Numerous instances can be cited of persons who have come here in apparently the last stages of consumption, who can to-day testify to the efficacy of the climate in restoring them to the most robust and vigorous health. The air of the mountains is of course more bracing and invigorating, and is laden with the rich balsamic odors of the pine and fir that clothe their rugged sides.

LOS ANGELES COUNTY.

The Southern Portion of it Described—A Fertile Section.

[Written for THE WEEKLY CALL of February 20th, 1879, by RICHARD MELROSE, editor and proprietor of the Anaheim Gazette.]

ANAHEIM, February 6.—Ten years ago Southern California was a *terra incognita* to all, other than residents of the Pacific Coast, and the writer has met many persons of more than ordinary intelligence who frankly confessed that, previous to their coming here, Southern and Lower California had been to them synonymous terms, and that they had pictured to us an American Sahara, devoid of all agricultural possibilities. And notwithstanding the avalanche of newspaper correspondence, pamphlets, etc., which have been showered upon the Eastern people the past few years, descriptive of this part of the State, there are yet many who have but a faint perception of the true situation of this country, and are still athirst for every item of information written concerning it.

The southern portion of Los Angeles County, which I shall attempt to describe as fully as possible in the space allotted to me, contains an area of about six thousand square miles. In the Legislature of 1869-70, a bill was introduced to create the

County of Orange out of this area. It passed the Assembly but it was defeated in the Senate, and although nearly every subsequent Legislature has been importuned on the subject, the bill has never succeeded in getting beyond the Committee to whom it was referred. The matter will probably be dropped for some years, but that there must be segregation of this county in the future there is no room for doubt.

A comparison between the present condition of things in this section, and the state of affairs ten years ago, presents a record of wonderful growth and progress. In 1869 the population in the area of which we write was 4,000; now it is 11,000. There were then four school districts and 800 census children; now there are twenty-two school districts and 2,215 census children. Then, the trade of almost this entire section centred in Anaheim. Now, there are half a dozen flourishing towns, each indispensable to the communities surrounding them. Then, one could ride on the plains for hours without desecrating a human habitation, or seeing aught but vast herds of semi-wild cattle. Now, these herds have disappeared, the rich soil pays tribute to the husbandman, and substantial, cosy homes dot the plains. In this area there are five millions of taxable property—one-third of the entire county. And when it is considered that there is very little waste land in this section—that nearly the entire area is susceptible of cultivation—one can get an idea of the greatness awaiting us in futurity, when the plains are peopled by a thrifty and industrious class of immigrants.

The colony of Anaheim, is one of the most noted in the history of the State, and its founding and subsequent career are themes upon which a score or more of writers have exercised their pens. But it is a story which cannot too often be told, as it is a record of a successful struggle against adverse circumstances and discouraging obstacles, and contains many a useful lesson for future colonial experiments. There are bodies of land contiguous to Anaheim in every way suited for colonies, and it is not without the hope of encouraging a co-operative settlement of these lands that I briefly sketch the origin and progress of the colony of Anaheim.

In 1857 a number of German residents of San Francisco

purchased a tract of 1,165 acres, twenty-seven miles southeast of Los Angeles, for which they paid \$2 per acre. The tract was divided into fifty twenty-acre lots and fifty house lots, 140x181½ feet. A superintendent was engaged, and under his supervision eight acres of each lot was planted in vines, the lots were fenced with willow trees and an irrigating canal made from the Santa Ana River to the colony. While all this was being done, the stockholders pursued their usual avocations in San Francisco, and the distribution of the lots was not made until 1859. Each stockholder had at that time paid assessments to the amount of \$1,400. The lots were viewed and assessed at prices varying from \$1,840 to \$475—the location, quality of soil and relative growth of vines determining the value of each particular lot. The average cost of the lots was \$1,300.

It was, then, in 1859 that the first colonial experiment in the State was fairly inaugurated. "Campo Aleman" (German Camp) it was called by the native population—an appellation it retains to the present day. After providing themselves with suitable residences, the first work of the colonists was to plant the balance of lots in vines. About two acres surrounding their houses were planted in fruit trees and in garden truck and flowers.

A history of the trials and difficulties which beset the colonists in these pioneer days would make an interesting chapter by itself. The obstacles which they encountered and overcome will never present themselves to any colony which may be hereafter organized; and it is sufficient to note the results of these struggles against adverse circumstances. Nordhoff, in the chapter which he devotes to Anaheim in his book on California, sums up these results quite fully and truthfully. He says in substance: Only one of the original settlers has moved away; the property which cost \$1,300 is now worth from \$5,000 to \$10,000; there are no poor in Anaheim; there is little intemperance." And he might have added that all these pioneers—at least those who have remained on their vineyards and embarked in outside business—are possessed of a competence, and in some instances may be classed as wealthy.

The wine product of Anaheim, in 1872, was 800,000 gallon

and it is estimated that in a good season the yield will fall little short of one million gallons. There are vineyards here which have produced over one thousand gallons per acre, although I suppose that five hundred gallons per acre would be a big average. Under the stimulus of an increased and presumedly permanent demand for California wines, the area devoted to vines is being increased steadily.

Anaheim wine has long been favorably known, not only in this State but in the East. The grapes grown here are incomparable for the manufacture of sweet wines and brandy, and a leading vineyardist informs me that the gravelly lands of Orange, six miles from here, produce a grape from which a dry wine has been made superior to any he had ever seen in Napa or Sonoma Counties.

Anaheim is an incorporated town and a thriving business centre. The by-streets, bordered with willow and sycamore, form, according to one writer, "green lanes that cannot be excelled even in Merry England, for picturesque and rural beauty." There are numerous substantial brick buildings in the business quarter, two large hotels, planing and grist mills, tannery, two banks, a sanitarium, of which a distinguished English physician is proprietor, and in fact every business is well represented. The public buildings comprise a school house, completed last month at a cost of \$10,000; an Odd Fellows' Hall, costing \$9,000; a Masonic Hall, costing \$4,000; and an Episcopal and a Presbyterian Church, which cost respectively \$3,600 and \$3,500. The railroad buildings at the depot are the largest in the county, excepting, of course, those at the county seat, and an immense amount of exports and imports are handled there notwithstanding that the bulk of the grain is shipped via Anaheim Landing, a roadstead twelve miles from town, operated by an incorporation known as the Anaheim Lighter Company.

In the Spring of 1868, a company of San Francisco capitalists purchased 200,000 acres of land, known as the Stearns Ranchos—140,000 acres in Los Angeles County and 60,000 acres in San Bernardino County—for which they paid \$1.50 per acre. It is on the principal of these ranchos—the San Juan Cajon de Santa Ana—that Anaheim is located. Pre-

vious to their purchase by the company, these lands were used solely for grazing purposes, and, as before remarked, vast herds of semi-wild cattle roamed over them undisturbed. In 1869 the company began selling the land in small farms, and there now remain in their possession only 80,000 acres in this county, and 50,000 acres in San Bernardino County.

I venture to say that there is not another tract of land in the world that can compare with this in agricultural possibilities. On the greater portion of it grain can be grown and fruit raised in almost entire independence of the season. The great Cajon Ditch, which was completed a few months ago, at a cost of about \$50,000, can distribute the waters of the Santa Ana River over 10,000 acres of fertile land in this immediate neighborhood. Artesian wells furnish an inexhaustible and inexpensive supply of water for irrigation. In short, I do not believe that there is any other section in the whole State in which a man of moderate means and abundant energy can do as well, or get himself as comfortable and cosy a home in a few years. It is really astonishing to see what a few years of well-directed energy will accomplish in this wonderful country. There are places here in which are orange trees bending beneath the weight of the golden fruit, bearing vines and every variety of northern fruit trees, tall evergreen trees and shrubs, and myriads of flowers—all growing on land which, five years ago, was barren plain, and as devoid of vegetation as a barn floor. It would take fifteen years of unremitting toil to accomplish in the older States what can be done here in five, in the way of surrounding ones home with trees and flowers.

For the cultivation of the orange, lemon and lime the land about here is unsurpassed. There are many young orchards here of exceeding thrift, showing the adaptability of the soil for the growth of semi-tropical fruits. Not only that, but this is one of the few places in the county where the heavy frosts of January did not injure the young orange trees; the shelter given by a range of low hills east of here is the cause of our immunity from the unwelcome visitation.

All kinds of Northern and semi-tropical fruit do well here. The agricultural products are: Corn, barley, rye, potatoes, beans, onions, hops, flax, castor beans, etc. Oats are raised to

some extent, and wheat also. Odessa wheat is receiving an extensive trial this year, and it is believed that it will successfully withstand the "rust," which has heretofore made wheat growing a risky experiment.

The price of good farming land in this valley varies from \$25 to \$100 per acre, according to location. There are many thousands of acres which can be purchased at the first-named figure, upon which can be grown any of the crops mentioned in the preceding paragraph. On a great deal of this land artesian wells can be had at a depth of from 100 to 200 feet.

The other towns in the southern portion of the county are Westminster, Garden Grove, Santa Ana, Tustin City, Orange, San Juan Capistrano and Norwalk. Westminster is six miles west of Anaheim, and is one of the most thrifty and desirable places in the county. It was started as a Presbyterian Temperance Colony in 1870 by Rev. L. P. Webber (since deceased), and its success is another strong argument in favor of the colony system. It still retains its temperance features, but is no longer exclusively Presbyterian. There are three fine church edifices—Presbyterian, Congregational and Methodist. A more orderly, law-abiding, sociable and intelligent community does not exist, and their prosperity is as much due to their industry as to the advantage of location. Westminster is specially noted for the number and volume of its artesian wells, of which there are nearly 400 in the colony. There is scarcely a farm on which there are not one or more of these wells spouting forth their saving waters. In the driest years, the farmer who has an artesian well on his place can raise a good crop, as a well of ordinary volume can be made to irrigate forty acres.

Much attention has been paid in Westminster to the raising of Northern fruits, and it is generally conceded that they will take the palm in this respect. At the last exhibition of the Southern California Horticultural Society, the display of apples from Westminster took the first premium, although the competition was brisk and embraced displays from San Buenaventura and other counties. There are as yet but few bearing trees in the colony, but in a couple of years there will be a large amount for export.

Garden Grove is about three miles from Westminster, and is surrounded by land that produces immense crops of corn. It is also in the artesian belt, and there are a great number of flowing wells. Its population is analogous to that of Westminster, being steady, temperate, industrious and prosperous. A handsome church building has just been completed, and, something remarkable, it is all paid for.

Santa Ana is seven miles southeast of Anaheim, and is the terminus of the San Diego branch of the Southern Pacific Railroad. It is the centre of as rich an agricultural country as there is on the face of the globe, and it is an undisputed fact that its prospects for some day becoming an interior city of great commercial importance are assured. It already enjoys the trade of a thickly-settled country, but, as in nearly all other California towns, the business is divided up among a plethora of merchants. The famous corn-producing section, Gospel Swamp, is only a few miles from Santa Ana. That is the place where from 80 to 120 bushels of corn is raised to the acre, and a Swamper who tells you that he has raised a pumpkin which weighed 300 pounds is not required to make an affidavit in support of his statement. Such instances are by no means rare.

Tustin City is two miles east from Santa Ana, and is a charming place. It is thickly settled, and there are numerous young orange plantations scattered about. The land is much the same as at Santa Ana, being rich, easily worked and very prolific. Tustin's latest achievement was the production of a sweet potato which weighed twenty-two pounds.

Just beyond Tustin City lies the famous San Joaquin Rancho, on whose broad acres are pastured thousands of sheep. The rancho has a large amount of valuable farming land, which will find a ready sale when the owners see fit to place it on the market.

Orange is very aptly named. Orange groves cluster thickly all around the settlement, and the trees grow with surprising thrift and vigor. Many of the orchards are bearing for the first time this year, and it is estimated 50,000 oranges will be shipped this season. In a year or two the production will be immense. Raisins of very superior quality are also made

here; indeed, the soil is adapted in a high degree to the culture of grapes. Wine-making is not carried on to any extent, most of the grapes grown being of a variety adapted for raisins. Besides, it is a temperance settlement, and the attempt to establish a saloon there some years ago was resisted so vigorously that there is little danger of a renewal of the attempt.

San Juan Capistrano, thirty-three miles south from Anaheim, is famous chiefly for its possession of a picturesque old Mission, built in 1776, and partially destroyed by an earthquake in 1812. There is some very good farming and grazing land in the vicinity of the town.

There is one thing in which the people of this section feel a great pride, and that is the salubrity and healthfulness of the climate. In fact, Anaheim is known far and wide as a health resort second to none on the coast. The first writer to bring it into notice in this respect was Charles Nordhoff, who devoted several pages of his book to given thermometrical comparisons between Anaheim and other noted health resorts in this country and in Europe. That consumptive and asthmatic persons find this climate highly beneficial is attested by the fact that there are a large number of residents here, who came to this country a few years ago suffering from the ailments alluded to, who are now strong and hearty men and women.

One very peculiar feature of this country is that there are half a dozen different climates within its borders, each beneficial to some class of complaint. For instance, there are some persons with asthmatic or consumptive tendencies who find the climate of Westminster best suited to them; others, again, find that the dryer climate of Anaheim gives them the needed relief; while others prefer the still dryer atmosphere of the mountains east of Anaheim, and so on.

I give below the average temperature of Anaheim, as recorded by a self-registering thermometer:

	1877.	1878.
January	51 $\frac{7}{8}$	51 $\frac{5}{8}$
February	56	52 $\frac{1}{4}$
March	58	54
April	57 $\frac{1}{4}$	56
May	61 $\frac{5}{8}$	60 $\frac{1}{8}$

	1877.	1878.
June	70	64
July	72 $\frac{1}{8}$	67 $\frac{1}{2}$
August	70 $\frac{1}{4}$	69
September	69	66 $\frac{1}{8}$
October	62	61 $\frac{1}{8}$
November	59 $\frac{1}{2}$	56
December	54 $\frac{1}{2}$	50 $\frac{3}{4}$

I must briefly allude to the mining interest which last year sprung into existence in the mountains, twenty-three miles east of Anaheim. During last Summer, about 800 locations were recorded; several mining districts were established, and there is a well-grounded belief here among miners of experience that the coming Summer will witness developments beyond the expectations of the most sanguine. The discoveries are mostly silver ledges, but there are also gold and tin mines of great promise.

The celebrated Black Star coal mine is twelve miles east of Anaheim. The coal from this mine is in use all over the country, and is rapidly superseding imported coal. It is sold in Anaheim at \$8 per ton. A large force of men are constantly employed, and the Directors are men of capital and enterprise.

The bee-keeping business is an industry which has of late years attracted a great many people. The cañons are crowded with bee ranches, and the honey yield is immense. Notwithstanding the very low price at which honey has stood for some time, the business is reasonably profitable, as the natural advantages of the country do away with the necessity of any great expense.

In concluding my letter, it must not be supposed that I have done aught but touch briefly upon facts mostly sought after by those who contemplate a removal to this part of the State. It would take several columns of THE CALL to treat this section and its industries with the fullness the subject warrants.

SAN BERNARDINO COUNTY.

[Written for THE WEEKLY CALL of March 27, 1879, by JOHN ISAAC.]

San Bernardino, one of the largest, if not *the* largest county of the Union, is bounded on the north by Inyo County and Nevada, on the east by Arizona, on the south by San Diego, and on the west by Los Angeles and Kern Counties, and contains 23,472 square miles, of which the larger portion is desert and mountains. The principal agricultural section is in the valley of San Bernardino, immediately surrounding the town of the same name. The valley was originally covered by Mexican grants, the principal one of which—the San Bernardino Rancho—contained 35,509.41 acres, and was granted by Juan B. Alvarado, Governor of California, in 1842, to Jose del Carmen Lugo, Vicente Lugo and Diego Sepulveda. His title was confirmed by the Commissioners to settle private land claims in California in 1853, and was afterwards covered by U. S. patent, which gives a clear title to lands on this rancho. In 1851 the title was transferred by the Lugos to the Mormons, who settled the rancho under the leadership of Amasa Lyman, Charles C. Riche and Ebenezer Hanks. It was subdivided into farms and sold to actual settlers. The present town was laid out and a thriving Mormon colony established. It was said to have been Brigham Young's plan to bring all the Mormon emigration to this coast and use San Bernardino as an outfitting depot for those en route to the promised land. The Mormon war of 1857, however, caused him to change his programme, and to centralize his powers in Utah; he called in all his outstanding settlements, and San Bernardino was abandoned to the wicked. After the departure of the Mormons it became, owing to its isolation, a refuge for the worst classes of the country, and for years a state of affairs bordering on barbarism prevailed. A better class has for years been coming in, and the advent of the railroad and a large influx of Eastern population consequent thereon, and has steadily and permanently changed the face of affairs, until San Bernardino to-day boasts as peaceable and orderly population as can be found in any county on the coast. This change is especially noticeable in the surroundings. The old box houses have given place to

tasty modern cottages, the uncultured fields to neatly kept farms and thriving orchards, and a demand, constantly increasing, has sprung up for those modern civilizers, music, books, etc.

The climate of the county is as varied as are its physical features. The valley, owing to its inland position, possesses a climate differing from the seaboard towns, the dryness of its atmosphere constituting a marked difference. The Spring and Fall months are the most enjoyable, the weather then being all perfection. The temperature is steady, the nights cool, the days cloudless, and a pleasant sea breeze which reaches the valley every day from eleven to two o'clock and continuing until sunset, greatly modifies the heat, even of midsummer. In midsummer the days are hotter than in the coast towns, the thermometer ranging from 95 degrees to 105 degrees. The heat, however, is dry and not at all enervating or oppressive, and work can be carried on in the sun with more pleasure than when the thermometer records 75 degrees to 80 degrees in the East. Sunstroke is a thing utterly unknown in this valley. The regular sea breeze which reaches the valley daily, while it does not affect the thermometer, greatly modifies the heat which would otherwise be oppressive. The nights are always cool, and a pair of blankets will be found desirable almost every night through the Summer months.

Winter is the rainy season, and when not raining, the days are usually clear, warm and pleasant. There is not a day in the year when men cannot work out doors in comfort in their shirt sleeves. In the valley occasional frosts might occur in the Winter season, but from this visitation the foot-hills surrounding the valley are always exempt, and the most tender plants flourish in the open air without injury. The most disagreeable features of the Winter are the "northers," which usually come in the early part of the season. They are hot, parching winds from the desert, which, though seldom boisterous, are depressive and destructive, as they evaporate all moisture from vegetable and animal life, leaving everything scorched and parched up. They are, however, of infrequent occurrence. A change of climate may be had by a drive up the mountains, requiring but a few hours' time, where cool and

refreshing valleys are found, abounding in forests and streams, and where the weather, even in the hottest season of the year, is Spring-like and balmy.

One of the great advantages enjoyed by San Bernardino is its abundance of water. Almost surrounded by mountains, numerous streams pour into it from all directions, while artesian water can be obtained almost anywhere in the valley by sinking from 30 to 300 feet. There are now several hundred flowing wells in the valley, affording pure water for the household, as well as for purposes of irrigation. Owing to this abundance of water the farmers have less dread of a dry season than is experienced in other parts of the South, while a failure of crops is a thing wholly unknown.

In resources, this county can boast as great variety as it can of climate and physical features. The principal ones are agricultural products, semi-tropical and deciduous fruits, lumber, wool, cattle, gold, silver, lead, and honey. The staple cereal is barley, which is a Winter crop, and in ordinarily good seasons yields very heavily. After the barley is harvested, on damp or irrigable lands, it is succeeded by a crop of corn; alfalfa, which is the principal hay crop, yields very heavily, and is cut from four to seven times in the season, yielding at each cutting about two tons per acre. Vegetables of all kinds attain here an enormous growth, as do all other agricultural products. The cultivation of semi-tropical fruits has, of late years, received a large share of attention, and immense tracts of land have been devoted to their culture. The principal fruit section is in and around Riverside, where there is a stretch of country some twelve miles in length, devoted entirely to semi-tropical fruits, and already the owners are receiving handsome incomes from their orchards. Riverside is now boxing and shipping large quantities of raisins, which are pronounced by judges the best in California and unequalled in the world. Besides semi-tropical fruits, all those of more northern latitudes can be raised, and apples and berries raised in the mountains are unsurpassed for size or flavor. Although these fruits grow in the valley, they do not attain that degree of excellence which those grown in the mountains do. Figs,

almonds, walnuts, and, in short, all kinds of fruits and nuts do well here.

Another important industry of the country is agriculture, to which, of late years, a great deal of attention has been devoted. Large quantities of honey have been, and are continually being, shipped from this county to the East and Europe. The abundance of water, and, in consequence, of bee feed, renders this business less risky and more profitable here than in those sections where a season of drouth may carry away the profits of several good years. San Bernardino honey ranks with that of San Diego, unequal in quality, flavor and clearness.

The mountains surrounding the valley are filled with magnificent forests of pine, cedar, oak, and other timbers. There are now four saw mills engaged in lumbering, and their supply of timber is practically exhaustless.

Another of the great industries of the county is that of wine growing. It is here that the Cucamungo vineyard is situated, the wines of which have a national reputation. Another large vineyard, the Barton, is located at old San Buenaventura. In addition to these there are numbers of smaller patches devoted to vines, which aggregate a very important item in the exports of the county.

Wool is also a great article of export, the uncultivated tracts outside of the valley affording excellent pasturage for sheep, of which large herds are kept, their wool finding a ready market in the East, where it is mostly sent.

Several very rich mines are found in this county, the best known being the Ivanpah, which for years past has been paying largely, and sending regularly its quota of fine bullion to increase the wealth of the county. Clark District, in which this mine is located, has also numerous other claims more or less developed, and, with better facilities for transportation, will become a camp of great importance. Resting Spring, although not in this county, being just over the boundary, is a contributor to the resources of San Bernardino, as a great portion of its business is done at the latter place. Ord District has some very promising mining claims, and actual work is

being prosecuted there with good results. The Holcombe and Bear Valley gold mines are situated about forty miles by trail from the town, and are well known for their vast deposits of auriferous quartz. Within twelve miles from town are the Lytle Creek hydraulic mining workings, which have been in operation for some years, and are now being worked with good results. Placer diggings are found in many parts of the county, especially around Holcombe Valley, and a great many are engaged in this class of mining. There are several other districts of minor importance in the county, producing lead and silver ores. One of the largest deposits of tin in the world is found at Temescal, while vast quantities of asbestos, borax and other minerals are found in different parts of the county.

The principal town and county seat is San Bernardino, containing some 3,000 inhabitants. It was located and settled by the Mormons, and covers one square mile. Like all their towns, it is regularly laid out, with broad streets running north and south, east and west, intersecting each other at right angles. The blocks, each containing eight acres, are subdivided into lots of one acre each. It is thickly studded with trees, as is indeed the whole valley, which, with the bright green of the gardens and surrounding fields, give it more the appearance of a New England village than a California town. A large number of the lots have artesian wells on them, which are here sunk at a small cost. It contains a number of very creditable houses, business blocks, has good hotel accommodations, and is in all respects a modern American town. During the past year it has been visited by several heavy fires, which nearly destroyed the entire business portion; but it is now rebuilt, and a better class of buildings have taken the place of those destroyed. The buildings are mainly of brick, of which an excellent article is procurable at low figures. It has several good public buildings—Court House, school houses, theatre, etc.

The second place of importance is Riverside, twelve miles from San Bernardino, which, although quite youthful, is a thriving settlement. It is almost entirely settled by Eastern people, mostly of some means, many of whom have located there for their health; some for the pleasures of its mild climate,

and some for the purpose of raising semi-tropical fruits to which the entire surrounding country is devoted. It has an air of newness ; the houses are all neat and clean, gardens well kept, and everything indicative of enterprise and thrift. It has several churches, public school houses, town hall and other public buildings.

Colton, which has sprung into existence since the advent of the Southern Pacific Railroad, derives its importance from being the depot of San Bernardino, from which place it is distant about two and a half miles. It has some very creditable buildings, the principal of which are owned by the railroad and the Colton Land and Water Company.

Old San Bernardino derives its name from the old Mission, which is located here, and which is now but a heap of ruins, is distant from San Bernardino some five miles. It is a farming settlement, and has the oldest orange groves in the county. It is more favorably located for fruit growing than any other point, being at the mouth of a cañon, from which a gentle breeze blows every night, rendering frost an almost unheard of occurrence. Its oranges are noted for their size, beauty and flavor. Like all the trees of the county the orange trees here are not affected with scale-bug or other diseases to which those nearer the coast are liable.

The land of the valley is mainly black sandy loam, getting more and more sandy as we advance toward the mountains, while the foot-hills are of a gravelly nature. This variety of soils affords opportunity for the variety of products to which they are adapted, the low damp lands of the valley being especially adapted to the cultivation of corn, which attains an enormous growth. The higher lands are the better for fruit, while the mesa lands are unsurpassed for semi-tropical fruits. The soil of Riverside is a heavy red clay, with a light admixture of sand, formed evidently from the washes of the mountains. It is especially adapted to fruit, and trees of all kinds make an astonishing growth in it. In the mountains are found many ranches, the soil of which is a heavy black loam and is used mainly for potato and apple growing, for both of which it is unsurpassed, and the potatoes and apples raised in these mountain ranches are unsurpassed

in the world, and always command a much higher price than those produced in the valleys.

In price, lands vary according to location, improvements and other advantages. Good lands can be had, with water for irrigation, at \$25 to \$100 per acre. Upon such land two crops a year can be raised. Land without water is comparatively worthless; although in an ordinary season a crop of grain can be raised on dry land.

The Southern Pacific Railroad passes through the valley, and the Utah Southern, as projected, will in all probability intersect the S. P. R. R. near San Bernardino when completed.

This county affords good opportunities for a safe investment of capital. It has unlimited resources now lying idle for lack of means to develop them. Labor, provisions, building material and all the necessities of life are cheap, and while it would not be wise for men entirely dependent upon their daily toil for a living to come here, those who have some means can here make a home and a living as well and as easily as in any part of the world.

SAN DIEGO COUNTY.

[Written for the RESOURCES OF CALIFORNIA, by DANA C. PEARSON.]

SAN DIEGO, April 3, 1879.

In visiting this favored and favorite section of the Golden State adjoining our neighboring Republic, Mexico, whose real merits have been so little known, but which to us have increased from year to year as we have so thoroughly investigated this back country to the beautiful city and magnificent Bay of San Diego—we have this year, also, spent several days in visiting many portions—the valleys, and mesa lands, and observed carefully the progress and development, and more particularly the more rapid growth, under similar circumstances, of trees, fruits, plants, vegetables, etc., than in any other section of the State—just as much more so as the climate is warm and more favorable, being further south.

This is the extreme southern county of the State, extending

from the Pacific Ocean to the territory of Arizona, stretching along the Mexican frontier about 175 miles. We divide the county into two great sections. The western division extending from the Pacific Ocean to the summit of the mountains—or rather the desert—about eighty-five miles interior ; and the desert section, embracing the eastern half of the county, called the Colorado Desert. The western portion is the only section settled, and this but sparsely inhabited. The country along the coast consists of valleys and plains, a little broken and undulating near the ocean and becoming more hilly as you recede from the ocean, and when reaching thirty or forty miles back the mountain sections are reached, and from here to the desert the country consists of mountains and valleys ; while the first portion of the section named consists of table lands or mesa tracts and valleys. In this western half of the county are more than thirty valleys from two or three miles long to fifteen or twenty miles, embracing from a few hundred acres to 20,000 or more. These valleys are of a dark alluvial soil, exceedingly fertile, while the mesa or table lands are of a reddish soil underlaid with a stratum of clay or adobe, which holds the moisture and requires less irrigation than the bottom lands. These mesa lands were supposed, until recently, to be worthless or nearly so, but it is proven by actual tests that they are the best agricultural lands in the State, with proper cultivation. Those who read our notes on this county last year, will recollect that we visited this county, and spent many days in pushing our researches in investigating the local resources of the back country of this, to us, the pleasantest spot on the earth ; and in this, our annual visit, just twelve months from our last tour through Southern California, we did the same thing, visited the same sections and new ones, noting the improvements and development of the former, and looking with interest into the latter. The growth of trees and plants and the rapid maturity of crops excel any other section of our State, eclipsing Riverside, Orange, San Gabriel Mission, and Los Angeles Valley, which stand so famous and rank so high in these respects. We speak from the record ! We know whereof we speak ! We have visited various sections, both of the valley and mesa lands, from year to year, taken notes, measured trees,

recorded from the residents themselves the growth, yield, and productions of these soils; and we aver that we have never found in any section of our favored and famous State, a region to excel this. We defy any man—we challenge every man to controvert, or gainsay the fact we here establish. Mr. Higgins' great success on the red mesa lands on National Ranch, five miles back of National City, in the production of good crops by intelligent and skillful labor in farming, and bringing forward an orchard of northern and semi-tropical fruit trees is simply wonderful. Major Levi Chase, at the head of the bar in San Diego, who owns a ranch in Cajon Valley, twelve miles back of San Diego, and with whom we visited that valley this year, told us that he had raised fifty-seven bushels of wheat to the acre there, and with good farming no man need ever lose a crop. We looked upon 7,000 acres of as pretty wheat as we ever saw growing in one body, in this valley during our recent visit there. Maj. Chase has added, the last year, 2,000 Muscat vines, 600 trees of apple, pear, peach, and English walnuts. His almond trees made five to eight feet growth last year. He has eighty acres in fruit. His two year old pear trees bore mammoth pears. He has all varieties of northern and semi-tropical fruits. He has three wells, with windmills, which furnish all the water needed for those things that require irrigation. His ten acres of olive trees look splendid, as well as his large orange orchard. We need only refer to the five perfect crops of Irish potatoes raised on the same land in thirteen months, in Paradise Valley, and the fine sweet potatoes weighing fifteen to twenty-six pounds each; strawberries measuring six inches in diameter, and sixty to seventy baskets sold per week from one-third of an acre, all this winter from January to March. Rows of potatoes 200 feet long in an orchard of bearing trees, yielding \$5 a row. Two year old peach trees yielding \$25 in fruit last year; six year old orange trees bearing 200 fine oranges; others in full bloom, a Punlo orange growing on a little tree whose trunk is not two inches in diameter, measuring twenty-five inches in circumference—being pear shaped it measures thirty inches the long way, being nearly the size of a gallon keg; and so we might continue, but these are enough—*facts* known to those who see them. Mr. J.

A. Shuriff, artist in San Diego, at our request went out, while we were there, to Paradise Valley, and photographed the big orange. It is sustained by a sack of net-work under it, and fastened to the limbs above.

In Paradise Valley, on National ranch, we think we saw the most remarkable growth of trees, fruits and vegetables on record. Mr. Frank A. Kimball is astonishing every one in the cultivation of trees on his very fine block in National City; and his brother, Warren C. Kimball, farther back from the bay, and on the high red land, is likely to beat him in horticulture. Warren has 1,000 fruit trees on his ten acre block, embracing all the northern varieties but the cherry, and all the semi-tropical but the lime. His almond trees, three years from the seed, last year bore four pounds each. His grape vines, the second year from cuttings, bore fifteen pounds each. Frank Kimball has an olive tree five years old, which bore last year \$8 worth of olives. His three year old olive trees will average twelve feet high. His peach trees the second year from the bud and not more than four feet high, hung full of delicious fruit. He has 1,000 trees out, and 700 or 800 vines. The Kimball brothers are planting thirty acres in fruit trees this spring. We measured an eucalyptus tree in Frank's yard, five years old, whose trunk measured forty inches in circumference. It is not unusual here to produce potatoes of four pounds weight. A beet grew on Frank Kimball's place which weighed 124 pounds; so we might continue to cite individual illustrations in agricultural, horticultural and farm productions, but the above are enough.

The unparalleled growth of trees in this county has prompted people to take a deep interest in horticulture within the past two or three years, and it is wonderful to realize the vast amount of trees now put out in orchard form all through the back country of San Diego city. In 1867 there were not over 600 fruit trees in the county. The Kimball Bros., on National Ranch, will have out when their orchard is completed, 11,000 olive trees, more than are now out in the State. Three year old olive trees have yielded \$6 a year per tree.

ORANGES.

San Diego County, as an orange belt, ranks with Old San

Bernardino and Mission San Gabriel, the two superior locations in the State where trees are matured, as proven on Mr. Phipps' place near town and Owen's place in Paradise Valley.

Mr. J. Lankershiem, one of the large land owners and wheat raisers of the State, told us, while here, that *his wheat crop profits per acre, for the last eight years in this county, exceeded those of any county in the State, and his wheat lands lie in several counties.* Yet, he said, standing in Mr. Phipps' orange orchard, near San Diego City, "I would rather have the yield of ten acres of such oranges as that acre before us, annually, than to have the yield of the 7,000 acres of wheat annually sown in the nice Cajon Valley." Mr. Lankershiem is one of the most candid and conservative men in the State,—nothing visionary about him. figures show that the yield from the soil in this county—from farm products, fruits and honey—everything except stock, was more per capita, last year, than in any county in the State.

THE BEE INTEREST.

From Mr. J. S. Harbison, the pioneer bee man of Southern California, and probably the most scientific and best apiarian in the country, we gathered the following facts. He took the first bees into this county in the fall of 1869, and the six last years have developed this important industry to an almost incredible extent. In 1875 we reported 10,000 stands in the county, last year 14,000, and we can report 20,000 this year. Mr. Harbison has six apiaries, employing twelve men, and has over 2,000 hives. He produced 100 tons, or 200,000 pounds, last year, and has shipped east for himself and others twenty car loads. The foothills in this county are probably the best bee range in the United States.

SCHOOLS AND CHURCHES.

The schools are reported in a good condition in city and county—they having an excellent system of public schools, besides two good high select schools in the city—Miss Sarah Gunn's San Diego Academy, and Mrs Gates' Point Lomo Seminary. The city is well supplied with churches—having a Presbyterian, Methodist Episcopal, Baptist, Episcopal, Unita-

rian and Catholic church. The salaries of teachers are up to the average in the State; and although the school houses are below the average, the efficiency of the public schools are a source of just pride to her people. This county has 1,667 school children and drew this year from the State school fund \$11,168.

SOCIETY.

We know of no happier people in the world, and we know of no spot where the traveller, the tourist, a stranger, is made to enjoy so much of life; is made to drink in so much of life, in short, realizes so much of perfect bliss on earth as here. The superb climate—unrivalled in this country, if not in the world; the pretty city itself, and last but not least, the intelligence and refinement of her people, contribute to this end. We know of no society east or west—anywhere, superior to that of San Diego.

NATIONAL RANCH. (RANCHO DE LA NACION.)

This entire ranch, with some outside property, is owned by the Kimball Brothers, and it has a water frontage of about six miles on the widest part of the bay of San Diego, extending back seven miles, and is bounded on the north by what is now known as the city of San Diego proper, embraces forty-two square miles or 26,880 acres. It is slightly undulating, gradually rising as you recede from the bay back, with plains, gently sloping hills and valleys, and with soil equal to any in the world, all classes being represented from heavy clay to lightest loam. No one need look for finer garden vegetables than are grown here, the same may be said of melons and sweet potatoes, growing enormously large and maturing in a remarkably short time. Tomatoes bear fruit here and blossom every month in the year for years in succession, on the same vines. Every year adds largely to the already great variety of fruits raised here both on the valley or bottom lands as well as on the red mesa lands, the latter of which have been considered almost valueless until tested and proven valuable. We will name the following northern fruits being now grown here. The peach, apricot, nectarine, pear, apple, quince, plum, cherry, fig and grape. For raisins, the table or

wine varieties known in the east as the hot house grapes are raised here with less trouble and expense than a field of corn in the east, yielding 200 or 300 per cent. greater income. There has never been a failure in the fruit crop, and such a thing as a worm in fruit has never been seen. Almonds of the finest quality bear at two years from the bud, and are among the most rapid growing trees. English walnuts grow rapidly but have not come into bearing yet. Lime trees bear largely, but a few only have been set on this ranch. The lemon is almost a wonder here, as before indicated. Oranges have not come into bearing yet, the oldest trees being seven years, yet they are blossoming at that age. There are over 20,000 orange trees now growing here from two to seven years old, many of them on the high mesa lands and making excellent growth. The trees now growing here are proof positive evidence enough that there are hundreds of thousands of acres of land around the bay of San Diego adapted to the production of the semi-tropical fruits. The olive seems to excel all other trees in the rapid growth of the tree and the yield of fruit. The finest olive orchard in the United States is at the old Mission of San Diego near here. A single tree in this orchard has produced 192 gallons of fruit at one crop, selling for eighty cents per gallon wholesale, realizing \$150. They are grown from cuttings and are as easily raised as grape vines or the willow, and they bear here some the second year, and the third year from the cutting the yield is considerable. Eighty to one hundred olive trees are set to the acre and one man can start his cuttings and take care of twenty acres. It is estimated that every acre in olives at the age of five years will pay a profit equal to \$2,000 in bank. Age increasing the income and the tree being long lived the profits are enormous in a few years. The market for this fruit embraces the world. The natural home of the olive seems to be the mesa or table land. Nearly all the fruits named are now grown here by the thousands, and any one can judge of the success by examining the tree and fruit as to the adaptation of the soil, climate, etc. Strawberries excel here and other berries do well also. The shade and ornamental trees grown here embrace the entire list of the more northern varieties, as well as those of the

semi-tropical. The eucalyptus, acacia, pepper and Monterey cypress are among the most rapid growers.

San Diego Bay affords some of the best varieties of fish known, and in abundance. Small game, such as geese, ducks, quail, snipe, larks, hare, and rabbits, are numerous.

CLIMATE, HEALTH, ETC.

It is almost universally conceded that San Diego has the most equable and salubrious climate in this country, if not in the world. We have consulted those who have been familiar with the most favorite resorts and best sanitariums of Southern Europe, and after becoming familiar with this favored and favorite place, they give an unqualified opinion that this excels all others. We certainly have never seen anything to equal it, and the growth of trees, plants, shrubs, and vegetables all through the winter months, prove unmistakably the evenness and mildness of the climate; and the unparalleled low death rate is a sure proof of the healthfulness of the place. Tuber roses and the bearing tomato vines in Col. Nesmith's yard, in midwinter, should convince any one of the truthfulness of the above statements. The rapid growth of trees and shrubs in Mr. Hinchman's and Mr. A. H. Gilbert's yards are still further proofs. Mr. Horton's flower garden, a full block, designed to be a full and perfect representation of what San Diego can produce in floriculture, is a still further proof. Tomato vines are in blossom and bearing the ripe fruit every day in the year, and strawberries can be picked every day in the gardens all through this back country and in the city.

FURTHER INFORMATION.

The following are books and pamphlets giving further information about Southern California with the names of the author and publisher, the place and date of publication, and the number of pages:

The Resources of California, by John S. Hittell. Seventh edition. San Francisco, 1879, p. 450. A. L. Bancroft & Co., San Francisco, Cal., price, including postage, \$1.50.

The Resources of California, San Francisco. A monthly paper. Terms \$2 per annum. John P. H. Wentworth, publisher and proprietor. Will be sent to any address on receipt of amount of subscription.

"California as it is!" by special correspondents of the "Weekly Call," San Francisco, being correct and impartial descriptions of all the counties in California by leading editors, practical farmers and others, in each county—1880: San Francisco Call Company, p. 175.

California for Travellers and Settlers, by C. Nordhoff. New York, 1872: Harper & Brothers, p. 250.

Stockton and San Joaquin Basin, by N. M. Orr. Stockton, 1874: Stockton Board of Trade, p. 55.

Santa Clara Valley. San Jose, 1875: San Jose Board of Trade, p. 32.

Los Angeles City and County, by A. T. Hawley. Los Angeles, 1876: Los Angeles Chamber of Commerce, p. 144.

Los Angeles County. Los Angeles, 1876: Herald Publishing Company, p. 60.

Anaheim and Vicinity, by W. R. Olden: Anaheim, 1874, p. 50.

Handbook of Monterey. Monterey, 1875: Walton & Curtis, p. 130.

Guide to San Jose. San Jose, 1875: G. H. Hare, p. 85.

Kern County, by Julius Chester. Bakersfield, 1876.

San Diego, 1874: San Diego Board of Trade.

The pamphlets of the Boards of Trade of Stockton, San Jose, San Diego, and Los Angeles, were issued for gratuitous distribution, and if the editions are not exhausted, can be obtained without charge on application to the publishers, or to the Boards of Trade of those cities.

The postage on this pamphlet is 3 cents to any part of the United States or Europe. After you have read it, give it or send it to some friend.

Address of Land Agent.—Applications for the purchase of land belonging to the Company should be made to

JEROME MADDEN,

Land Agent of the Southern Pacific Railroad Company,

Corner of Fourth and Townsend Streets,

San Francisco, Cal.

